Attorney Docket No: FICO-002/00US **PATENT**

Express Mail Label Number: EV 459985836 US
Date of Deposit: January 24, 2005

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Date: January 24, 2005 By: Sherry Duncan Bitler
Sherry Duncan Bitler

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Sergio NIETO GIL, et al.

Examiner: [Not Yet Assigned]

Serial No.: 10/617,538

Art Unit: 3683

Confirmation No.: 3497

Filed: July 11, 2003

FOR: MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE

Mail Box Missing Parts
Commissioner for Patents
P.O. Box 1450
Arlington, VA 22313-1450

DECLARATION SUPPORTING PETITION UNDER 37 CFR §1.47(a)

I, James P. Brogan, declare and state as follows:

1. I am an attorney in the law firm of Cooley Godward LLP, which is prosecuting the above-identified patent application on behalf of Fico Cables, S.A., ("Fico").

2. Sergio Nieto Gil ("Nieto-Gil") and Jaune Prat Terradas are believed to be the co-inventors of the above-identified patent application.

3. One of the co-inventors, namely Nieto-Gil, has refused to sign a Declaration under 37 CFR § 1.63 and an Assignment for the above-identified patent application.

4. I have been informed that Nieto-Gil was an employee of Fico at the time that the invention described and claimed in the above-referenced application was conceived and reduced to practice and, therefore, believe and understand that based upon his employment agreement and applicable law Nieto-Gil has a duty to assign the above-identified patent application to Fico.

5. The circumstances surrounding Nieto-Gil's refusal to sign the Declaration and Assignment are set forth below.

6. I prepared the above-identified application for filing in the United States in July 2003.

7. Attached as Exhibit A is a true and correct copy of a letter, dated September 20, 2004, that I sent to Nieto-Gil enclosing a copy of the above-identified patent application along with a Declaration and an Assignment. In my letter, I informed Nieto-Gil that he is listed as an inventor on the above-referenced application, and I asked him to sign the Declaration and Assignment, which were enclosed with the letter, and return those documents to our offices as soon as possible.

8. Attached as Exhibit B is a copy of an email dated October 19, 2004, that I received from Manuel Moreno Torres, counsel for Nieto-Gil, confirming effectively that Nieto-Gil received my letter dated September 20, 2004, together with the Declaration and Assignment that were enclosed with that letter. The letter also indicates that Nieto-Gil would be willing to sign the Declaration and Assignment that I forwarded to him, if he received significant compensation (i.e., some 49,000 euros).

9. Since receiving the email attached as Exhibit B, it is my understanding that Ms. Lara Grant, counsel for Fico, has had several communications with Mr. Moreno Torres concerning the above-referenced application.

10. As of this date, I have not received a signed Declaration or Assignment from Nieto-Gil, and it is my understanding that Nieto-Gil has refused to sign a Declaration or Assignment for the above-referenced application, unless he receives additional compensation from Fico.

11. Based upon copies of correspondence that I have received from Ms. Lara Grant, counsel for Fico, I understand that Fico does not believe that it owes Nieto-Gil any further compensation for executing a Declaration and Assignment for the above-referenced application. I also understand that, absent receipt of such further compensation, Nieto-Gil has refused, and continues to refuse, to execute a Declaration and Assignment for the above-referenced application. Copies of several letters between Ms. Grant and counsel for Nieto-Gil that I have received are attached hereto as Exhibit C.

12. The last known address that I have for Nieto-Gil is: Mr. Sergio Nieto Gil, C/ Duquesa Villahermosa 139 11°B, 50009 Zarogoza, Spain. This address is believed to be the residence Nieto-Gil's father.

13. The last known address that I have for counsel acting on behalf of Nieto-Gil is: Bufete Moreno-Torres, A/A Mr. Manuel Moreno Torres, Paseo de Pamplona, N°1, 7° A, 50004 Zaragoza, Spain. It is my understanding that Ms. Lara Grant continues to correspond with Nieto-Gil's counsel at this address.

14. All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true. These statements were made with the knowledge that willful false statements, and the like, so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

COOLEY GODWARD LLP
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Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5601
Tel: (720) 566-4190
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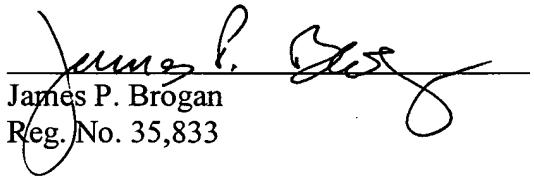
Respectfully submitted,
COOLEY GODWARD LLP

By: 

James P. Brogan
Reg. No. 35,833

Cooley Godward LLP

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September 20, 2004

VIA FEDERAL EXPRESS

Mr. Sergio Nieto Gil
C/. Duquesa Villahermosa 139 11°B
50009 Zaragoza SPAIN

RE: TITLE: MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE
DOCKET NO.: FICO-002/00US; BILLING NO.: 303273-2002

Dear Mr. Nieto Gil:

Enclosed for your signature is a copy of an Assignment and Declaration (with a copy of the above-referenced application filed with the U.S. Patent and Trademark Office on July 11, 2003). You were listed as an inventor on this application, and to complete the filing of the application we need you to sign the enclosed Declaration and Assignment. Please sign both documents and return them to our office as soon as possible in the Federal Express packaging also enclosed. Should you have any questions with respect to this application, please do not hesitate to contact me.

Best regards,

James P. Brogan

James P. Brogan

JPB:sdb

Enclosures

221564 v1/CO
4QYK01!.DOC

EXHIBIT A

Cooley Godward LLP

ABOGADOS

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JAMES P. BROGAN
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jbrogan@cooley.com

20 de septiembre de 2004

VIA FEDERAL EXPRESS

Sr. Sergio Nieto Gil
C/. Duquesa Villahermosa 139 11° B
50009 Zaragoza ESPAÑA

REF.: TÍTULO: MECANISMO CON SENSOR DE CARGA PARA OPERAR FRENOS
EXPEDIENTE n.°: FICO-002/00US; FACTURACIÓN n.°: 303273-2002

Estimado Sr. Nieto Gil:

Adjuntas a esta carta le enviamos para su firma una copia de una Cesión y de una Declaración [junto con una copia de la solicitud antes mencionada presentada ante la Oficina de Patentes y Marcas de los Estados Unidos (U.S. Patent and Trademark Office) el 11 de julio de 2003]. En dicha solicitud se lo mencionaba a usted como Inventor, y para completar su presentación necesitamos que firme la Declaración y la Cesión adjuntas. Por favor firme ambos documentos y envíelos a nuestra oficina lo más pronto posible dentro del paquete de Federal Express que también adjuntamos. Si tiene alguna pregunta sobre esta solicitud, no dude en ponerse en contacto conmigo.

Atentamente,

James P. Brogan

JPB: sdb

Adjuntos
221564 v1/CO
4QYK01!.DOC

PATENTE

Expediente del abogado n.°: FICO-002/00US

Número de etiqueta de correo urgente:
Fecha de envío:

Por el presente, certifico que este documento o arancel se envía en el servicio "Express Mail Post Office to Addressee" del Servicio Postal de los Estados Unidos según el artículo 1.10, Título 37, del Código de Reglamentaciones Federales (Code of Federal Regulations, CFR) en la fecha antes mencionada, y está dirigido a Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Fecha: _____ Por:_____
Sherry Duncan Bitler

DECLARACIÓN

En mi carácter de inventor designado a continuación, declaro por el presente que:

Mi domicilio, la dirección de mi oficina postal y mi ciudadanía son las que figuran junto a mi nombre;

Creo que soy el primer inventor original y único (si a continuación se incluye un solo nombre) o el primer inventor original conjunto (si a continuación se incluye más de un nombre) de la invención objeto de este documento, para la cual se solicita una patente, que se denomina:

MECANISMO CON SENSOR DE CARGA PARA OPERAR FRENOS

cuyas especificaciones:
(marque una opción)

[] se adjuntan al presente;

[x] fueron presentadas como Solicitud de los Estados Unidos n.° de Serie 10/617.538 el 11 de julio de 2003;

[] fueron presentadas como Solicitud Internacional conforme al Tratado de Cooperación en materia de Patentes (Patient Cooperation Treaty, PCT) n.° _____ el día _____, y modificadas en virtud del Artículo 19 o el Artículo 34 del PCT el día _____ (si corresponde);

He analizado y comprendo el contenido de las especificaciones mencionadas, incluidas las solicitudes de patentes, según sean modificadas conforme a lo antedicho;

Reconozco que tengo la obligación de revelar a la Oficina de Patentes y Marcas de los EE.UU. toda la información de la cual tenga conocimiento, que sea sustancial para patentar dicha invención de conformidad con el Artículo 1.56, Título 37, del CFR:

Por el presente reivindico los beneficios de prioridad en el extranjero de conformidad con el Artículo 119 y/o Artículo 365, Título 35, del Código de los Estados Unidos (United States Code, U.S.C.) sobre todas las solicitudes de patentes en el extranjero, todas las solicitudes presentadas en el extranjero para obtener un certificado de invención, o todas las solicitudes internacionales conforme al PCT que designen al menos un país distinto de los Estados Unidos de América, que se enumeran a continuación. Asimismo, he identificado a continuación todas las solicitudes de patentes en el extranjero, solicitudes presentadas en el extranjero para obtener un certificado de invención o solicitudes internacionales conforme al PCT que designen al menos un país distinto de los Estados Unidos de América, presentadas por mí en relación con el mismo tema, cuya fecha de presentación sea anterior a la de las solicitudes en relación con las cuales se reivindica la prioridad:

Solicitudes anteriores en el extranjero

PAÍS/INTERNACIONAL	NÚMERO DE SOLICITUD	FECHA DE PRESENTACIÓN (día, mes, año)	PRIORIDAD REIVINDICADA
PCT/EP	02/00596	22/01/2002	[X]SÍ []NO
Alemania	100102685.4	22/01/2001	[X]SÍ []NO

Por el presente, reivindico el beneficio conforme al Artículo 119(e), Título 35, del U.S.C. en relación con cualquier solicitud temporal de los Estados Unidos mencionada a continuación:

_____ _____
(Número de solicitud) (fecha de presentación) (día, mes, año)

_____ _____
(Número de solicitud) (fecha de presentación) (día, mes, año)

Por el presente, reivindico el beneficio, en virtud del Artículo 120 y/o 365, Título 35, en relación con cualquier solicitud de los Estados Unidos o cualquier solicitud internacional que designe a los Estados Unidos de América que se enumera a continuación y, en tanto el objeto de cada una de las reivindicaciones de esta solicitud no se revele en las solicitudes anteriores de la manera dispuesta en el primer párrafo del Artículo 112, Título 35, del U.S.C., reconozco mi obligación de revelar a la Oficina de Patentes y Marcas de los EE.UU. toda la información de la cual tenga conocimiento, que sea sustancial para patentar dicha invención de conformidad con el Artículo 1.56, Título 37, del Código de Reglamentaciones Federales, que se encontró disponible entre la fecha de presentación de las solicitudes anteriores y la fecha de presentación nacional o internacional conforme al PCT de la presente solicitud:

Solicitudes anteriores de los EE.UU. o solicitudes internacionales conforme al PCT que designan a los EE.UU. para obtener los beneficios en virtud del Artículo 120, Título 35, del U.S.C.

SOLICITUDES DE LOS EE.UU.			**SITUACIÓN (marcar una opción)**		
N..° DE SOLICITUD DE LOS EE.UU.	FECHA DE PRESENTACIÓN EN LOS EE.UU. (día, mes, año)		Pendiente	Patente otorgada	Abandonada
			[]	[]	[]
			[]	[]	[]
SOLICITUDES CONFORME AL PCT QUE DESIGNAN A LOS EE.UU.			[]	[]	[]
N° DE SOLICITUD CONFORME AL PCT	FECHA DE PRESENTACIÓN CONFORME AL PCT (día, mes, año)	N.° DE SOLICITUD DE LOS EE.UU. (si corresponde)	[]	[]	[]
			[]	[]	[]
			[]	[]	[]

Por el presente, declaro que todas las manifestaciones realizadas en el presente son verdaderas y de mi conocimiento. Asimismo, considero que todas las manifestaciones realizadas sobre la base de información y convicciones son verdaderas, y que dichas manifestaciones se realizaron a sabiendas de que cualquier declaración falsa deliberada o similar puede ser sancionada con multa o prisión, o ambas, conforme a la Sección 1001 del Título 18 del Código de los Estados Unidos y que dichas declaraciones falsas deliberadas pueden poner en riesgo la validez de la solicitud o cualquier patente emitida en virtud de ésta.

Nombre completo del primer inventor: Sergio NIETO GIL

Firma del inventor _____ Fecha _____
Domicilio: C./Duquesa Villahermosa 139, 11° B, E-50009, Zaragoza, España
Ciudadano de: España
Dirección de la Oficina postal: C./Duquesa Villahermosa 139, 11° B, E-50009, Zaragoza, España

Nombre completo del segundo inventor: Jaume PRAT TERRADAS

Firma del inventor _____ Fecha _____
Domicilio: C./Roselló 492, 2° 2ª, E-08025, Barcelona, España
Ciudadano de: España
Dirección de la Oficina postal: C./Roselló 492, 2° 2ª, E-08025, Barcelona, España

Attorney Docket No: FICO-002/00US **PATENT**

Express Mail Label Number:
Date of Deposit:

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
Date: By: _____
Sherry Duncan Bitler

DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE

the specification of which:

(check one)

[] is attached hereto;

[x] was filed as United States Application Serial No. 10/617,538 on July 11, 2003;

[] was filed as PCT International Application No. ___ on ___ and was amended under PCT Article 19 or Article 34 on ___ (if applicable);

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above;

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information which is known to me to be material to the patentability of said invention in accordance with 37 C.F.R. §1.56;

I hereby claim foreign priority benefits under 35 U.S.C. §119 and/or §365 of any foreign application(s) for patent, any foreign application(s) for inventor's certificate, or any PCT international application(s) designating at least one country other than the United States of America listed below; I have also identified below any foreign application(s) for patent, any foreign application(s) for inventor's certificate, or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Prior Foreign Application(s)

COUNTRY/INTERNATIONAL	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED
PCT/EP	02/00596	22/01/2002	[x] YES [] NO
Germany	100102685.4	22/01/2001	[x] YES [] NO

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below:

_____ _____
(Application Number) (Filing Date) (day, month, year)

_____ _____
(Application Number) (Filing Date) (day, month, year)

I hereby claim the benefit under 35 U.S.C. §120 and/or §365 of any United States application(s) or of any international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date(s) of the prior application(s) and the national or PCT international filing date of this application:

Prior U.S. Application(s) or PCT International Applications Designating the U.S. for benefit under 35 U.S.C. §120

U.S. APPLICATIONS			**STATUS (*check one*)**		
U.S. APPLICATION NO.	U.S. FILING DATE (day, month, year)		Pending	Patented	Abandoned
			[]	[]	[]
			[]	[]	[]
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE (day, month, year)	U.S. APPLICATION NOS. (if any)			
			[]	[]	[]
			[]	[]	[]

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: **Sergio NIETO GIL**

Inventor's signature _____ Date _____
Residence: C/. Duquese Villahermosa 139, 11°B, E-50009 Zaragoza Spain
Citizen of: Spain
Post Office Address: C/. Duquese Villahermosa 139, 11°B, E-50009 Zaragoza Spain

Full name of second inventor: **Jaume PRAT TERRADAS**

Inventor's signature _____ Date _____
Residence: C./ Roselló 492, 2°2a, E-08025, Barcelona, Spain
Citizen of: Spain
Post Office Address: C./ Roselló 492, 2°2a, E-08025, Barcelona, Spain

EXPRESS MAIL NO. EL 870631059 US

APPLICATION FOR PATENT

TITLE: **MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE**

PRIORITY

[0001] The present application claims priority under 35 USC §§ 119 and 365 to commonly owned and assigned Application No. PCT/EP02/00596, entitled *Mechanism with Load Sensor for Operating a Brake,* which is incorporated herein by reference.

COPYRIGHT

[0002] A portion of the disclosure of this patent document contains material that is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent disclosure, as it appears in the Patent and Trademark Office patent files or records, but otherwise reserves all copyright rights whatsoever.

FIELD OF THE INVENTION

[0003] The present invention relates to an operating mechanism with load sensor for a brake, in particular, for a parking brake-system of vehicles, which is driven by an electric motor, which uniformly operates the brakes and which is supervised by means of a load sensor.

BACKGROUND OF THE INVENTION

[0004] Vehicles of different types mostly comprise two different braking systems. One of said braking system serves for reducing the velocity of the vehicle during driving and it is hydraulically or pneumatically operated, for example, via a pedal. The other braking system is used for securing the vehicle during parking. In this brake system, the brakes are mainly operated via brake cables which are set under tensile loads by means of

different lever mechanisms in the vehicle compartment. These brakes are also designated as handbrakes or lever brakes.

[0005] The prior art provides different solutions of mechanisms for operating parking brakes which are driven either by hand or by foot. Since sometimes substantial forces are needed to operate the parking brake, it is often not applied in the needed extent so that the vehicle can roll away in the parked state. Thereby, a high security risk is generated in traffic. On the other hand, it is also inconvenient for the driver to apply the parking brake with a high effort. For this reason, mechanisms for operating a parking brake were developed which are driven by an electric motor.

[0006] Although, it is convenient for the driver to use a parking brake with an electric operating mechanism, the construction of the parking brake and of the operating mechanism has to be protected against potential mechanical overload conditions so that for instance a defect of the motor does not lead to a damage or a destruction of the system. In this context, the WO 98/56633 discloses an electric operating mechanism with load sensor for a parking brake. This arrangement consists of an electric motor for the operation of a setting unit which is used for tightening or releasing a brake cable of a brake. The brake cable is connected with a setting unit via a load sensor so that the force exerted by the setting unit is directly transmitted and determined by the load sensor. It is a substantial disadvantage in this arrangement that the force transmission from the setting unit to the brake cable is disconnected in case of a failure of said load sensor. Therefore, an operation of the brakes is no longer possible which leads to a high risk in traffic.

Additionally, the production of said operating mechanism of the present parking brake is expensive due to its complex construction.

[0007] It is, therefore, the problem of the present invention to provide an operating mechanism for a brake the construction of which meets higher security requirements and which, even though, comprises a simple construction. It is a further problem of the operating mechanism of the brake to reduce the expenditure of maintenance due to a more compact arrangement of the single components.

SUMMARY OF THE INVENTION

[0008] The present invention solves the above problems by an operating mechanism particularly for a parking brake as defined in claims 1 and 15. Further features are included in the dependent claims which separately or in combination represent preferred embodiments.

[0009] The mechanism for operating at least one brake, in particular a parking brake, according to the present invention comprises an actuator connected to at least one brake cable and a load sensor for determining the mechanical load of the at least one brake cable wherein the mechanical load of the at least one brake cable is determined via the actuator in a manner decoupled from the at least one brake cable.

[0010] According to its broadest concept, however, the above defined operating mechanism may be also used without using the load sensor. Alternatively, other technical arrangements for the load evaluation may be used which can be placed

somewhere in the brake system to prevent damage or mechanical overload. This applies also for the embodiment according to claim 15.

[0011] For actuating at least one brake cable, mechanical, hydraulical, pneumatical, or piezoelectric actuators or combinations thereof can be used. While the brake cables are mostly loaded with tensile loads, it is necessary to supervise this mechanical load by means of a load sensor in order to identify the operating condition of the operated brakes and possible overload conditions of the brake cables and of the operating mechanism. To meet higher security requirements, the actuator is directly connected to the brake cable and the mechanical loading of the brake cable is determined via the actuator. Thereby, the force generated by the actuator is not directly transmitted to the brake cable via the load sensor. In case of a failure of the load sensor, the operation of the brakes by the operating mechanism is not affected and, thus, the necessary security is assured, for instance, in traffic.

[0012] Said actuator of the present invention changes its position in direction of its longitudinal axis dependent on the mechanical load of the at least one brake cable.

[0013] It is the advantage of the present invention that the actuator can carry out a rotation as well as a linear movement. While the rotation is used for operating the actuator, the linear position change can be used for a determination of the load-dependent on the mechanical loading of the brake cables. To this end, for example, a displacement signal is generated which is calibrated on the mechanical load of the brake cables.

[0014] The actuator of the operating mechanism is driven by an electric motor via a gear wherein the actuator comprises a gear wheel, a spindle and a nut.

[0015] According to the present invention, preferably, a mechanical actuator is used which changes its length driven by an electric motor. Thereby, the connected brake cables are actuated and the brakes are operated. The change in length results from a rotating spindle by screwing the nut off the spindle or on the spindle.

[0016] Furthermore, a first end of said spindle being complementary shaped to a concentric, profiled opening of said gear wheel and being guided therein so that a rotation of the gear wheel is transmitted to said spindle and that at the same time a displacement of said first end of said spindle is possible in axial direction within said concentric, profiled opening of said gear wheel.

[0017] Usually, the acting mechanical loads are indirectly determined via a displacement. Based on the configuration of the first end of the spindle and the opening of the gear wheel according to the present invention, the displacement being necessary for determining the load is carried out by the spindle. As a consequence, the load sensor must no longer be directly integrated in the load transmission from the actuator to the brakes. This arrangement provides improved security which is based on a direct load transmission and a simplified arrangement. In spite of the occurring displacement, the transmission of the rotation of the spindle is not affected since the first end of the spindle is guided in a profiled opening of the gear wheel. Additionally, a stopper is arranged at

the first end of the spindle so that the first end of the spindle cannot be completely removed from the gear wheel.

[0018] A rotation-decoupled stopper is mounted at a second end of the spindle. This rotation-decoupled stopper comprises a magnet fixing with a magnet. A Hall-chip in a Hall-chip fixing is arranged opposite of and spaced apart from said magnet wherein a spring is positioned between said magnet fixing and said Hall-chip fixing.

[0019] A load sensor is arranged near the second end of the spindle which is comprised of a Hall-chip and a magnet mounted in an appropriate way, respectively. The distance between the magnet and the Hall-chip is changed by the displacement of the spindle whereby an electric signal is generated in the Hall-chip due to a varying magnetic field. The displacement is carried out against the force of a spring having known characteristics which is clamped between the rotation-decoupled stopper and the Hall-chip fixing and which provides reference values for the loading of the at least one brake cable.

[0020] According to a preferred embodiment of the present invention, the nut comprises a respective inside thread to be guided on a thread of said spindle. Additionally, two Bowden cables are coupled to said nut via coupling facilities being symmetrically arranged to the spindle wherein the Bowden cables are connected to the at least one brake cable.

[0021] Due to the configuration of the nut according to the invention, the operation of the connected brake cable is enabled. Furthermore, a symmetrically load distribution on two

Bowden cables takes place inside the operating mechanism which realizes an increased operation security of the operating mechanism.

[0022] According to a further embodiment of the present invention, the nut is configured as a coupling mechanism comprising a nut with an arc-shaped outer surface and a movable lever mounted thereon. The movable lever comprises coupling facilities for at least two brake cables so that at least two brakes can be directly operated via said actuator.

[0023] On the one hand, the said coupling mechanism forms a necessary component of the actuator since it is guided on the spindle and changes its positions in the same way as the nut. Furthermore, the coupling mechanism uniformly distributes the loads on the at least two connected brake cables via the movable lever. Thus, different strains of the brake cables as well as tolerances in the length adjustment of the brake cables are equalized by a simple arrangement.

[0024] Furthermore, the operating mechanism comprises microswitches being arranged along the spindle or parallel to said spindle on said housing which are switched by said nut or by the coupling mechanism and thereby generate a signal which indicates that maintenance has to be carried out. Dependent on the wear of the brakes, the brake cables have to be actuated in a different degree to generate the same braking effect. Accordingly, the nut or the coupling mechanism is screwed on the spindle to different positions in direction of the gear wheel. If the nut or the coupling mechanism reaches a given position on the spindle, a microswitch is operated. Thereby, a respective signal is

generated which, for instance, informs the driver to see the garage in order to carry out maintenance work.

[0025] A further preferred embodiment of the present invention relates to an operating mechanism for at least one brake, particularly a parking brake, comprising an actuator having a spindle connected to at least one brake cable, and a load sensor for determining the mechanical loading of the at least one brake cable characterized in that said spindle is load controlled axially displaceable whereby the mechanical loading is uniformly distributed between the at least one brake cable and a second brake cable via said load controlled spindle displacement.

[0026] Based on the further preferred embodiment of an operating mechanism of the present invention, it is guaranteed that at the same time at least two brake cables connected to the actuator can be operated. The load applied by the operating mechanism is uniformly distributed to the connected brake cables. Therefrom, the advantage follows that a further technical assembly for realizing a uniform load distribution can be saved. Further, the whole operating mechanism consists of a few parts which do not require high efforts in maintenance. The loading of the operating mechanism as well as of the brake cables connected to the actuator are controlled by means of a load sensor. Since the load is uniformly distributed to the brake cables, one load sensor is completely sufficient.

[0027] According to a further preferred embodiment of the present invention, said actuator comprises said axially displaceable spindle with a thread and a nut for mounting

the at least one brake cable guided thereon. Said spindle is driven by an electric motor via a gear with at least one gear wheel.

[0028] Preferably according to the invention, said actuator of the present invention is simply configured. The axially displaceable spindle and the nut as main components of the actuator guarantee that the actuator can vary its length dependent on the transmitted rotation. By means of this length variation, connected brake cables are actuated and, thus, the connected brakes are uniformly operated. In this case, the rotation is generated by an electric motor and it is transmitted by means of the gear to the actuator.

[0029] Preferably according to the invention, said spindle comprises a guiding portion complementary shaped to a concentric profiled opening of the gear wheel. Said spindle is guided in such a way in said concentric profiled opening of the gear wheel that a rotation of the gear wheel is transmitted to said spindle and at the same time a displacement of the guiding portion of said spindle is enabled in axial direction of the spindle within the concentric profiled opening of the gear wheel.

[0030] Based on the construction of the spindle and the gear wheel, the transformation of a rotation in a linear motion is achieved. In this context, it is advantageous that said gear wheel and the spindle are positively connected which allows a rotation of the spindle with said gear wheel while at the same time an axial displacement of the spindle in said gear wheel is possible.

[0031] Preferably according to the invention, the positive connection between the spindle and the concentric opening of the gear wheel is realized in such a way that the guiding portion of the spindle comprises a rib and said gear wheel comprises a recess complementary shaped to said rib inside the concentric opening.

[0032] In this context, it is also conceivable that said rib is configured within the concentric opening of the gear wheel. Further, profiled openings of the gear wheel as well as profiled guiding portions as, for example, angular guiding portions are conceivable.

[0033] According to a further preferred embodiment of the present invention, the second brake cable is mounted on the guiding portion of the spindle. Additionally, the thread of the spindle is limited by a stopper so that the nut cannot be screwed from the spindle via rotation of the spindle.

[0034] According to a further preferred embodiment, said load sensor is connected to the spindle in order to determine the mechanical loading of the brake cables connected to the actuator.

[0035] According to a further preferred embodiment of the present invention, said operating mechanism comprises a housing with at least one displacement portion in which the nut is guided and displaced and by which the rotation of the nut is prevented.

[0036] A length variation of the actuator is only possible by the supplied rotation in case the nut can be screwed on or from the spindle. Because of this reason, the rotation of the

nut has to be prevented which is realized by the displacement portions in the housing of the operating mechanism. These displacement portions in the housing fix the nut so that only a displacement of the nut in axial direction of the spindle is realized. Therefore, the spindle can be screwed in the nut whereby the actuator shortens or whereby a mechanical tensile load is transmitted to the brake cables connected to the actuator. At the same time, this mechanical load is uniformly distributed to the connected brake cables since the spindle is freely displaceable within the concentric opening of the gear wheel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] In the following detailed description the presently preferred embodiments of the present invention are described with reference to the drawings, the show:

Fig. 1 a perspective general view of the inventive electric operating mechanism according to a first preferred embodiment of the invention;

Fig. 2 a sectional drawing of the preferred actuator with load sensor;

Fig 3. a top view of the electric operating mechanism according to a first embodiment of the invention wherein the brakes (not shown) are in an applied condition;

Fig. 4 a top view of the electric operating mechanism according to a first embodiment of the invention wherein the brakes (not shown) are in a released condition;

Fig. 5 a top view of the electric operating mechanism having a preferred coupling mechanism according to a further embodiment of the invention;

Fig. 6, 7 a perspective view of a further preferred embodiment of said operating mechanism.

DETAILED DESCRIPTION

[0038] A first preferred embodiment of the present invention is shown in Fig. 1 in a general view. The operating mechanism 1 for a parking brake contained in a housing 20 comprises as main components an electric motor 5, a gear 10, an actuator 30 and a load sensor 40. The operating mechanism 1 according to the invention can also be used for operating other brake systems than the parking brake. This requires that the signals provided by the load sensor 40 are correspondingly fast evaluated so that the operating mechanism 1 is controlled based on the signal evaluation. The housing 20 serves for the accommodation of the different components of the operating mechanism 1 which are thereby protected against outer influences as, for instance, humidity and mechanical impacts. Thereby, the efforts of maintenance of the operating mechanism 1 are reduced since the damage, for example, by corrosion is minimized.

[0039] The actuator 30 serves for the operation of the brake cables which lead to the respective brakes, for instance, the brakes of the rear wheels. According to a first preferred embodiment of the present invention, the actuator 30 forms a mechanical system which will be described in detail below. As a further solution for an actuator, for instance, hydraulic, pneumatic and piezoelectric systems or combinations thereof are

conceivable as long as their performed changes in length are sufficient for operating the respective brake cables.

[0040] The mechanical actuator 30 shown in Fig. 1 is driven by an electric motor 5 via a gear 10. The gear 10 serves for an optimal force transmission from the electric motor 5 to the actuator 30 and protects at the same time the electric motor 5 against a mechanical overload.

[0041] The load sensor 40 serves for the determination of the mechanical load of the at least one brake cable 60 which is operated via the actuator 30. The load sensor 40 fulfills different functions. On the one hand, it serves for the permanent supervision of the mechanical load of the brake cable 60 in order to provide a reference signal for the condition of the operated brakes (not shown). This information is especially appropriate if the operating mechanism 1 is also used for the braking during the drive. In cooperation with other systems, thereby for instance, a locking of wheels is prevented in case of a full brake application and the optimal velocity reduction of the vehicle is enabled. Furthermore, a mechanical overload condition of the operating mechanism 1 and the brake cable 60 is indicated by the signal generated by the load sensor 40 so that possible damages or a destruction of the system can be prevented. The load determination is indirectly executed via the compression of a spring 45 as described in detail below. In connection with the actuator 30, however, other systems are also conceivable which, for example, are based on the piezoelectric effect or which uses the resistance or capacity change due to length variation.

[0042] Fig. 2 shows a sectional view of a first preferred embodiment of the present invention for a detailed illustration of the actuator 30 with load sensor 40. The actuator 30 is connected with a gear 10 via a gear wheel 31 so that the rotation of the electric motor 5 is thereby transmitted to the actuator 30. The gear wheel 31 comprises a profiled concentric opening 31a for receiving a first end 34a of the spindle 34. The opening 31a is preferably complementary shaped to the first end 34a of the spindle 34 wherein the first end 34a of the spindle 34 is shaped so that at the same time a transmission of the rotation of the gear wheel 31 to the spindle 34 is enabled and a displacement of the spindle 34 in axial direction within the profiled concentric opening 31a of the gear wheel 31. For instance, a trihedral or a square profile are a conceivable profile of the first end 34a of the spindle 34. Furthermore, the spindle 34 comprises a stopper 34c at its outer first end 34a which prevents a pulling out of the spindle 34 of the opening 31a of the gear wheel 31. Additionally, the spindle 34 comprises a thread 34G in its center part guiding a nut 35 with a complementary inside thread. A plate-like stopper 34d is mounted on the second end 34b of the spindle 34. This plate-like stopper 34d is decoupled from the rotation of the spindle 34 by its bearing and serves for the support of the spring 45 of the load sensor 40 against the force of which the at least one brake cable 60 is loaded.

[0043] As already mentioned above, the nut 35 is guided on the spindle 34. Since the rotation of the nut 35 is prevented, its axial position is changed in correspondence to the rotation of the spindle 34. As a consequence, the nut 35 is screwed on or screwed off the spindle 34. In this manner, the actuator 30 is shortened or elongated and the brake cable 60 as well as the respective brakes (not shown) are operated. As shown in Fig. 1

according to a first preferred embodiment of the present invention, the mechanical load is transmitted starting from the nut 35 via two Bowden cables 70 to the at least one brake cable 60. Based on this inventive arrangement, the mechanical loads are uniformly distributed on the nut 35. Additionally, this arrangement meets increased security requirements since in case of a failure of one Bowden cable 70 the operating mechanism 1 can still operate. Additionally, based on the inventive arrangement, the brakes can be further operated via the operating mechanism 1 even in case of a failure of the load sensor 40. The load is directly transmitted from the nut 35 to the brake cable 60 whereas the load sensor 40 does not work as a coupling or a load transmission component.

[0044] For operating the brakes (not shown) via the inventive operating mechanism 1, the spindle 34 is in such a way rotated by means of the gear wheel 31 that the nut 34 changes its axial position in the direction of the gear wheel 31. Due to this position change, the at least one brake cable 60 being directly or indirectly mounted on the nut 35 is applied since the actuator 30 is shortened. The mechanical tensile load of the at least one brake cable 60 is applied against the force of the spring 45 of the load sensor 40 so that the spring 45 is accordingly compressed. The length change of the spring 45 due to the compression is only possible since the spindle 34 can be displaced in axial direction within the opening 31a of the gear wheel 31. The maximum axial displacement of the spindle 34 in direction of the load sensor 40 is limited by the stopper 34c. It is assured by this stopper 34c that in case of a failure of the load sensor 40 the spindle 34 is nevertheless kept in the opening 31a of the gear wheel 31 and thereby an operating of the brakes via the operating mechanism 1 is possible.

[0045] The state of applied brakes in the operating mechanism 1 is depicted in Fig. 3 while Fig. 4 shows the state of released brakes in the operating mechanism 1. In comparison to Fig. 4, the nut 35 is axially displaced in direction of the gear wheel 31 in Fig. 3 whereby the actuator 30 is shortened and the at least one brake cable 60 is applied. Based on the mechanical tensile loading of the brake cable 60 which acts on the spring 45 of the load sensor 40 as a pressure load, the spring 45 is compressed since the spindle 34 can be displaced in direction of the load sensor 40. For this reason, the spring 45 is shorter in Fig. 3 than in Fig. 4. When the brake cable 60 is released, the spring 45 expands and the spindle 34 is correspondingly displaced in direction of the gear wheel 31.

[0046] Within the load sensor 40, the length change of the spring 45 based on the axial displacement of the spindle 34 is used. The load sensor 40 comprises adjacent to the spring 45 a Hall-chip 41 and a magnet 43 which are displaced with respect to each other and against the load of the spring 45. Dependent on the distance variation between the Hall-chip 41 and the magnet 43, the varying magnetic field generates an electric signal in the Hall-chip 41 which is calibrated on the load of the compressed spring 45 whereas the force of the spring 45 represents the mechanical load of the at least one brake cable 60 as already mentioned above. To this end, the Hall-chip 41 is contained in a fixing 42 which is mounted on a housing 20 of the operating mechanism 1.

[0047] In the above-described preferred embodiment of the present invention, one brake cable 60 and the respective brake is operated by means of the operating mechanism 1.

Fig. 5 shows a further preferred embodiment of the operating mechanism 1 which is used for the operation of two brake cables 60 at the same time. To this end, a coupling mechanism 80 being similar to the nut 35 is guided on the spindle 34. The coupling mechanism 80 comprises a nut with an arc-shaped outer surface on which a moveably slewable lever 84 is mounted. The nut with arc-shaped outer surface comprises an inner thread being complementary shaped to the thread of the spindle 34. In the same distance from the center of the nut with arc-shaped outer surface, mounting facilities are arranged on both ends of the lever 84 on which a brake cable 60 is mounted, respectively. If the brake cables 60 are of different lengths or if they develop a different length because of a different strain behavior, the lever 84 slews so that the mechanical loads generated by the operating mechanism 1 are uniformly distributed on the brake cables 60 and the respective brakes in spite of the present differences in length of the brake cables 60. According to a further embodiment, it is also possible to movably mount the lever 84 in a different way on said above described nut 35 and, thus, a simpler shape of said nut 35 can be used. Based on this inventive arrangement, it is possible to use the operating mechanism 1 for the simultaneous operation of two brake cables 60 and the corresponding brakes. In this context, it is also conceivable to configure the coupling mechanism 80 capable to operate four brake cables. Additionally, a compact arrangement is provided which as a whole can be installed in the housing 20 and which is thus protected from outer influences.

[0048] Dependent on the length strain of the brake cables 60, on their different length adjustment and on the wear of, for instance, the brake lining, the nut 35 or the coupling

mechanism 80 is displaced to different positions in direction of the gear wheel 31 for the generation of the same braking force. In case of a strong wear of the brake lining, the distance to the gear wheel 31 is, for instance, the smallest. In order to indicate this wear state, for instance, microswitches can be mounted on the edge of the gear wheel 31 opposite to the spindle 34 which are operated by the nut 35 or the coupling mechanism 80 in the special case. It is also conceivable, to mount these microswitches in appropriate distances on the housing 20 or on the spindle 34 so that they are also switched there by the nut 35 or the coupling mechanism 80.

[0049] A further embodiment of the present invention is shown in Figure 6. The depicted operating mechanism 100 for a parking brake is accommodated in a housing 120. It comprises an actuator 130 which is driven by an electric motor 105 via a gear 110. The gear 110 can be comprised of one or several gear wheels dependent on which torque should be transmitted or which rotation speed should be achieved. Said gear 110 transmits the rotation of said electric motor 105 to a gear wheel 131 which comprises a concentric opening 131a. Said concentric opening 131a of said gear wheel 131 shows a certain profiled shape so that the rotation of said gear wheel 131 can be transmitted to a spindle 134 by means of said profiled opening.

[0050] Said spindle 134 and a nut 135 preferably form the actuator 130. The actuator 130 is featured in that it varies its length dependent on the transmitted rotation. Said length variation is either realized by screwing said spindle 134 in said nut 135 or by screwing said spindle 134 out of said nut 135.

[0051] In order to realize this length variation of said actuator 130 dependent on the transmitted rotation, said spindle 134 comprises at least in a sub-portion a thread 134G, see Fig. 7. This thread 134G is complementary shaped to the inner thread of the nut 135 so that said nut 135 can be screwed on this part of the spindle. In order to prevent that said nut 135 is completely screwed from said spindle 134, said spindle 134 comprises a stopper at the end of the spindle 134 directed to the thread 134G. Furthermore, said spindle 134 comprises subsequent to said thread 134G a guiding portion 136 which serves for the guiding of said spindle in said concentric opening 131a of said gear wheel 131. The spindle 134 in this guiding portion 136 is complementary shaped to the shape of the concentric opening 131a in the gear wheel 131. In this manner, the spindle 134 and the gear wheel 131 are positively connected to each other so that on the one hand the transmission of the rotation of the gear wheel 131 to the spindle 134 is enabled and on the other hand a displacement of the spindle 134 in axial direction of said spindle 134 is guaranteed. Preferred profiles for the concentric opening 131a in said gear wheel 131 and for the guiding portion 136 of the spindle 134 are angular profiles as for example a square or a hexagon, or a rib on the guiding portion 136 which projects in a corresponding recess in the concentric opening 131a of the gear wheel 131, or the assembly of the rib inside the concentric opening 131a and the assembly of the recess within the guiding portion 136 of the spindle 134.

[0052] Further, the end of the guiding portion 136 directed away from the thread 134G of the spindle 134 serves for the mounting of at least one brake cable 160. In order to appropriately connect the spindle 134 with at least one brake cable 160, said guiding

portion 136 can be configured in elongated shape or it can comprise a suitable fitting. Additionally, a load sensor 140 can be arranged between the guiding portion 136 and the end of the brake cable 160 to be connected, by means of which the mechanical load of the brake cables 160 connected to the actuator 130 is determined. In this preferred embodiment, the signal from the load sensor 140 is used to control the operations of the electric motor 105.

[0053] As already described above, a nut 135 is guided on the thread 134G of the spindle 134. This nut 135 serves for the mounting of at least one further brake cable 160. It is also conceivable that several brake cables 160 or brake cable-like intermediate connections are mounted on the nut 135. The nut 135 is configured in such a way that it can be guided in the housing 120 of the operating mechanism 100 so that its rotation is prevented. In a preferred embodiment, thus, opposite lateral portions of the nut 135 are guided in track-like displacement portions 125 of the housing 120. The displacement portions 125 allow a linear displacement of the nut 135 in an axial direction of the spindle 134 based on their shape. Therefore, the displacement portions 125 form a positive connection with the nut 135. It is also conceivable to provide these displacement portions 125 in a different shape as long as the linear motion of the nut 135 in the direction of the spindle axis is guaranteed. In this context, it is, for example, conceivable that the nut 135 comprises a projection on its bottom side (not shown) which is guided in a recess in the housing 120. In this manner, on the one hand, the rotation of the nut 135 is prevented and, on the other hand, the linear displacement of the nut 135 in the direction of the spindle axis is guaranteed.

[0054] As already mentioned above, the guiding portion 136 of the spindle 134 and the nut 135, respectively, are connected to at least one brake cable 160. Thus, the distance between the two ends of the brake cables 160 is determined by the distance between the guiding portion 136 and the nut 135. Furthermore, the spindle 134 can be axially displaced within the concentric opening 131a of the gear wheel 131 while at the same time the rotation of the gear wheel 131 can be transmitted to the spindle 134.

[0055] In case the gear wheel 131 is rotated in such a way that the spindle 134 is screwed in the nut 135 or the nut 135 is screwed on the spindle 134, the actuator 130 shortens. This means at the same time that the distance between the brake cables 160 mounted on the actuator 130 decreases so that said brake cables 160 are subjected to tensile loads. Since the spindle 134 in this concentric opening 131a of the gearwheel 131 is linearly displaceable, the tensile load generated by the shortening of the actuator 130 is uniformly distributed to the brake cables 160 connected to the actuator 130. The loading of the brake cable 160 is preferably determined by means of the intermediately arranged load sensor 140 so that an overload of the operating mechanism 100 or the brake cables 160 can be prevented.

[0056] In case the gear wheel 131 rotates in opposite direction as described above, the spindle 134 is screwed out of the nut 135. In this manner, the actuator 130 elongates which leads to the reduction of the tensile loads in the connected brake cables 160.

[0057] While the rotation of the gear wheel 131, the nut 135 is displaced in the displacement portions 125 independent of the rotation direction. At the same time, the

guiding portion 136 of the spindle 134 is displaced within the concentric opening 131a of the gear wheel 131. By this arrangement, a uniform operation of at least two brake cables 160 is realized in an effective and space saving way using only a few parts.

[0058] According to a further preferred embodiment of the present invention, the operating mechanism 1, 100 is equipped with an emergency system (not shown). Said emergency system serves for applying or releasing the breaks connected to the operating mechanism 1, 100 in case of a motor or a gear failure. This motor failure can be caused by an inner defect or a failure in the power supply of said motor 5, 105 which respectively prevent its further operation.

[0059] Said emergency system is preferably formed by a manually installable ratchet which is connected via a tool to one end 34a of said spindle 34, 134. Such a tool is, according to a preferred embodiment of the present invention, a wrench or a socket wrench used in connection with said ratchet. It is a main technical feature of the above tool to be connectable to the end 34a of the spindle 34, 134 to transmit a rotation of said ratchet to said spindle 34, 134. Preferably, a positive connection is realized between said tool and said spindle 34, 134 wherein also non-positive connections can be used based on the skilled person's knowledge.

[0060] In view of the first preferred embodiment of the present invention, the end 34a of said spindle 34 preferably comprises a suitably shaped hole (not shown) which is engaged by said tool to establish a positive connection while using the emergency system. According to a preferred embodiment, said hole is formed adjacent said stopper

34c. In view of the preferred embodiment according to the invention shown in Fig. 7, said hole is provided in the spindle face near the spindle portion with thread 134G.

[0061] The connection between the spindle 34, 134 and said tool is preferably achieved through a corresponding hole in the housing 20, 120 of said operating mechanism 1, 100. In an emergency case, said tool can be inserted through said hole in said spindle 34, 134. Then, said spindle 34, 134 is rotated by means of said ratchet in the corresponding direction so that the connected brakes are applied or released. Based on the direct connection between said spindle 34, 134 and said tool with ratchet, fewer turns of said tool are necessary compared to the number of turns of the motor axle for achieving the same actuation of the brake cables connected to said operating mechanism 1, 100.

List of reference signs

1, 100	operating mechanism
5, 105	electric motor
10, 110	gear
20, 120	housing
30, 130	actuator
31, 131	gear wheel
31a, 131a	concentric opening in the gear wheel
34, 134	spindle
34a	profiled first end of the spindle
34b	second end of the spindle
34c	stopper

34d	rotation-decoupled stopper
34G, 134G	thread of the spindle 34
35, 135	nut
40, 140	load sensor
41	Hall-chip
42	Hall-chip fixing
43	magnet
43a	magnet fixing
45	spring
60, 160	brake cable
70	Bowden cables
80	coupling mechanism
84	movable lever
125	displacement portion
136	guiding portion

WHAT IS CLAIMED IS:

1. An operating mechanism (1) for at least one brake, in particular a parking brake, comprising an actuator (30) connected to at least one brake cable (60); and a load sensor (40) for determining the mechanical load of the at least one brake cable (60) wherein the mechanical load of the at least one brake cable (60) is determined via the actuator (30) in a manner decoupled from the at least one brake cable (60).

2. The operating mechanism (1) according to claim 1, characterized in that said actuator (30) is driven by an electric motor (5) via a gear (10).

3. The operating mechanism (1) according to claim 1, characterized in that said actuator (30) changes its position in direction of its longitudinal axis dependent on the mechanical load of the at least one brake cable (60).

4. The operating mechanism (1) according to claim 1, characterized in that said actuator (30) comprises a gear wheel (31), a spindle (34) and a nut (35).

5. The operating mechanism (1) according to claim 4, characterized in that a first end (34a) of said spindle (34) being complementary shaped to a concentric, profiled opening (31a) of said gear wheel (31) and being guided therein so that a rotation of the gear wheel (31) is transmitted to said spindle (34) and that at the same time a displacement of said first end (34a) of said spindle (34) is possible in axial direction within said concentric, profiled opening (31a) of said gear wheel (31).

6. The operating mechanism (1) according to claim 5, characterized in that said first end (34a) of said spindle (34) comprises a stopper (34c) so that said spindle (34) cannot be completely removed from said concentric, profiled opening (31a) of said gear wheel (31).

7. The operating mechanism (1) according to claim 6, characterized in that said spindle (34) comprises a second end (34b) on which a rotation-decoupled stopper (34d) is mounted.

8. The operating mechanism (1) according to claim 7, characterized in that said rotation-decoupled stopper (34d) comprises a magnet fixing (43a) with a magnet (43).

9. The operating mechanism (1) according to claim 8, characterized in that a Hall-chip (41) in a Hall-chip fixing (42) is arranged opposite of and spaced apart from said magnet (43) wherein a spring (45) is positioned between said magnet fixing (43a) and said Hall-chip fixing (41a).

10. The operating mechanism (1) according to claim 4, characterized in that said nut (35) is guided on a thread (34G) of said spindle (34) by a respective inside thread.

11. The operating mechanism (1) according to claim 10, characterized in that two Bowden cables (70) are coupled to said nut (35) via coupling facilities being symmetrically arranged to said spindle (34) wherein said Bowden cables (70) are connected to said at least one brake cable (60).

12. The operating mechanism (1) according to claim 4, characterized in that said nut (35) is configured as a coupling mechanism (80) comprising a nut with an arc-shaped outer surface and a movable lever (84) mounted thereon.

13. The operating mechanism (1) according to claim 12, characterized in that said movable lever (84) comprises coupling facilities for at least two brake cables (60) so that at least two brakes can be directly operated via said actuator (30).

14. The operating mechanism (1) according to one of the preceding claims, characterized in that microswitches are arranged along said spindle (34) or parallel to said spindle (34) on said housing (20) which are switched by said nut (35) or by said coupling mechanism (80) and thereby generate a signal which indicates that maintenance has to be carried out.

15. An operating mechanism (100) for at least one brake, particularly a parking brake, comprising:

    a. an actuator (130) having a spindle (134) which is connected to at least one brake cable (160); and

    b. a load sensor (140) for determining the mechanical loading of the at least one brake cable (160), **characterized in that**

c. said spindle (134) is load controlled axially displaceable whereby the mechanical loading is uniformly distributed between the at least one brake cable (160) and a second brake cable (160) via the load-dependent spindle displacement.

16. Operating mechanism (100) according to claim 15, characterized in that said actuator (130) comprises said axially displaceable spindle (134) having a thread (134G) and a nut (135) guided thereon for mounting said at least one brake cable (160).

17. Operating mechanism (100) according to claim 16, characterized in that said spindle (134) is driven by an electric motor (105) via a gear (110) having a gear wheel (131).

18. Operating mechanism (100) according to claim 17, characterized in that a guiding portion (136) of said spindle (134) is complementary shaped to a concentric profiled opening (131a) of said gear wheel (131) and that it is guided in such a way in said concentric profiled opening of the gear wheel (131) that a rotation of the gear wheel (131) is transmitted to said spindle (134) and at the same time a displacement of said guiding portion (134a) of said spindle (134) is possible in axial direction of said spindle (134) within the concentric profiled opening (131a) of said gear wheel (131).

19. Operating mechanism (100) according to claim 18, characterized in that said guiding portion (136) of said spindle (134) comprises a rib and that said gear wheel (131) comprises a recess complementary shaped to said rib in said concentric opening (131a) or vice versa for forming a positive connection between said spindle (134) and said gear wheel (131).

20. Operating mechanism (100) according to claim 19, characterized in that said second brake cable (160) is mounted on said guiding portion (136) of said spindle (134).

21. Operating mechanism (100) according to claim 16, characterized in that said thread (134G) of said spindle (134) is limited by a stopper so that said nut (135) cannot be screwed from said spindle (134).

22. Operating mechanism (100) according to claim 15, characterized in that said load sensor (140) is connected to said spindle (134) for measuring the mechanical loading of the brake cables (160).

23. Operating mechanism (100) according to claim 16, characterized in that said operating mechanism (100) comprises a housing (120) having at least one displacement portion (125) in which said nut (135) is guided and displaced and by which the rotation of said nut (135) is prevented.

ABSTRACT

The present invention relates to an opening mechanism (1) for at least one brake in particular a parking brake comprising an actuator (30), connected to at least one brake cable (60) and a load sensor (40) for determining the mechanical load of the at least one brake cable (60) wherein the mechanical load of the at least one brake cable (60) is determined via the actuator (30) and decoupled from the at least one brake cable (60). By the arrangement according to the present invention, a direct connection between the actuator (30) and the brake cable (60) is provided wherein the load sensor (40) does not work as a load transmission or a coupling component. This arrangement meets high security requirements even in case of a failure of the load sensor (40) since the function of the operating mechanism (1) is not affected or prevented thereby.

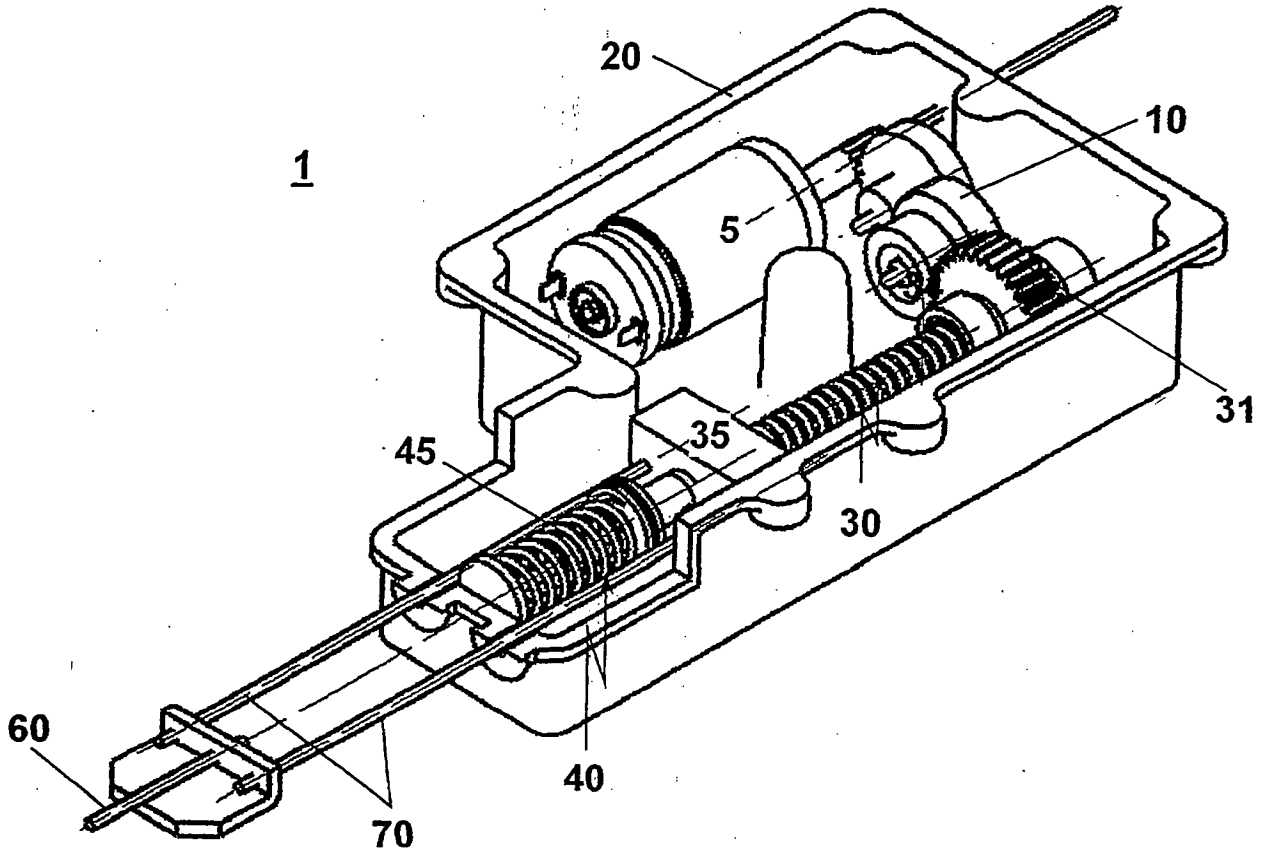
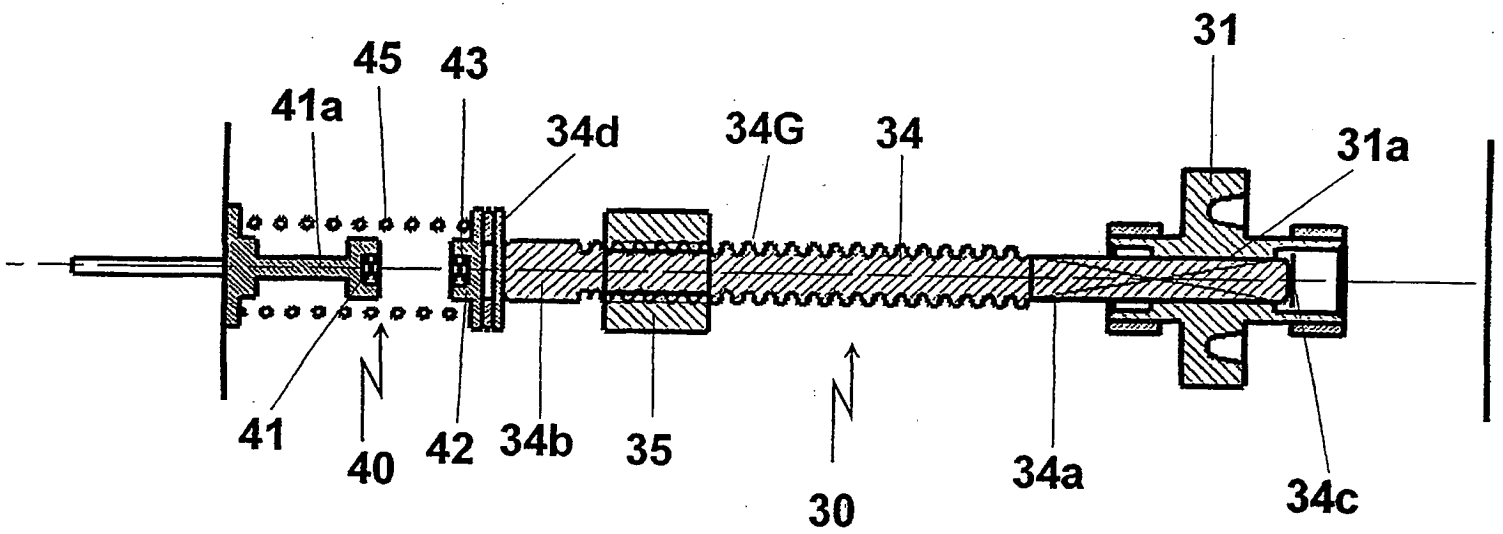


Figure 1

Atty Docket No.: FICO-002/00US
Express Mail No.: EL 870631059 US



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Express Mail No.: EL 870631059 US

Figure 2

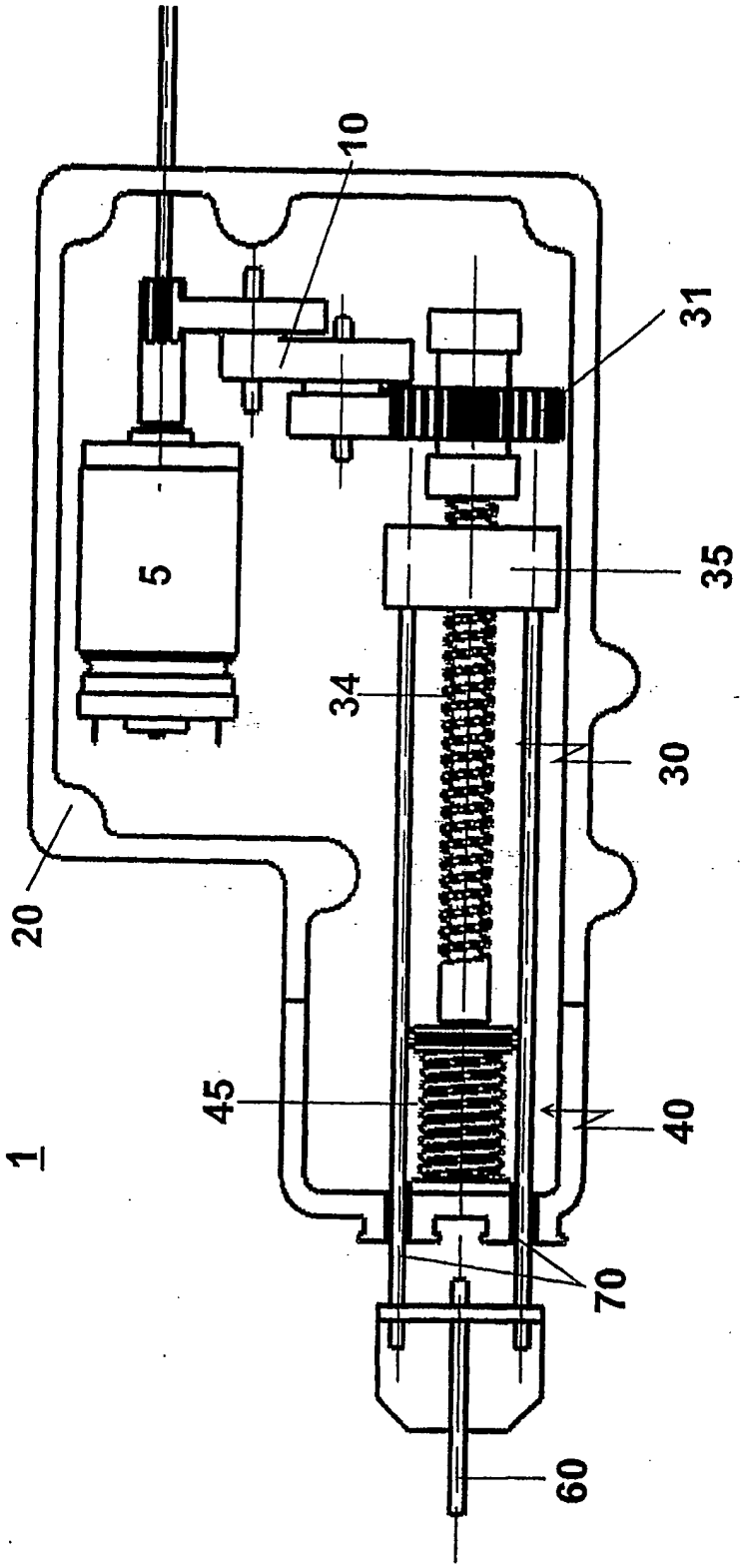

Figure 3

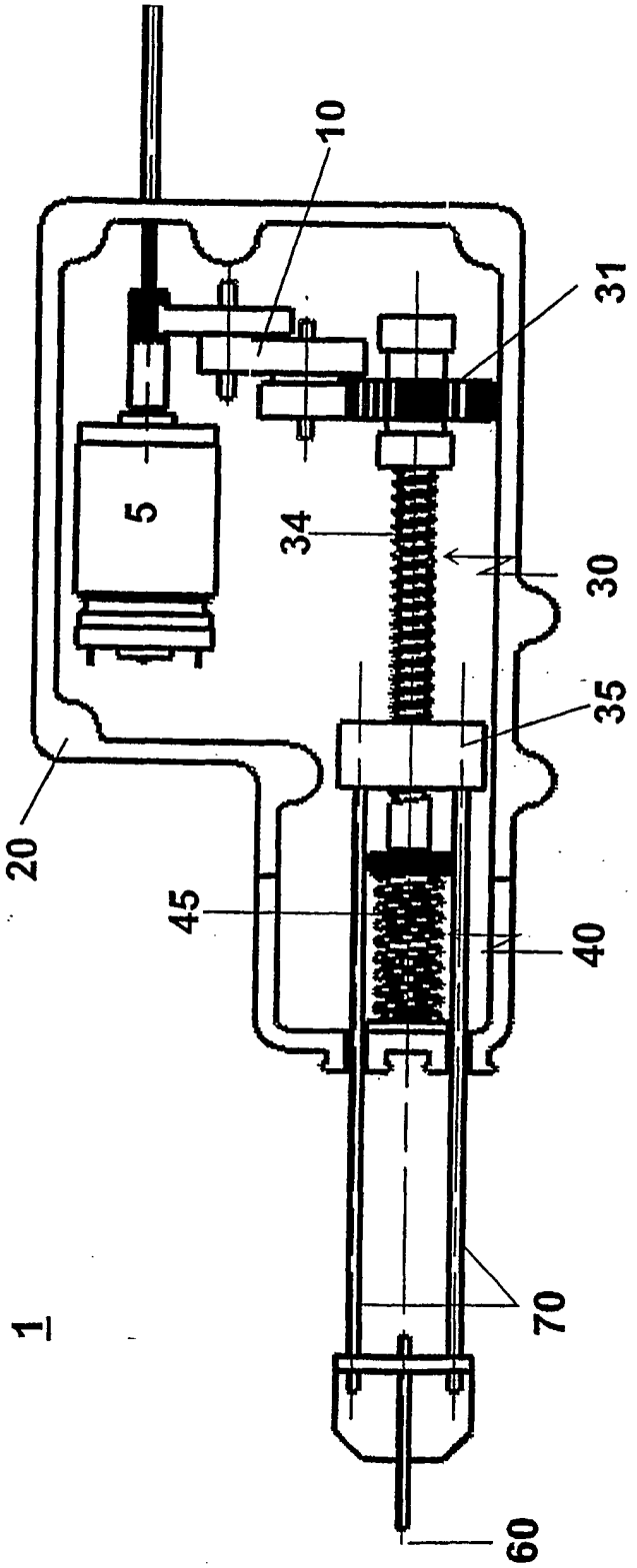

Figure 4

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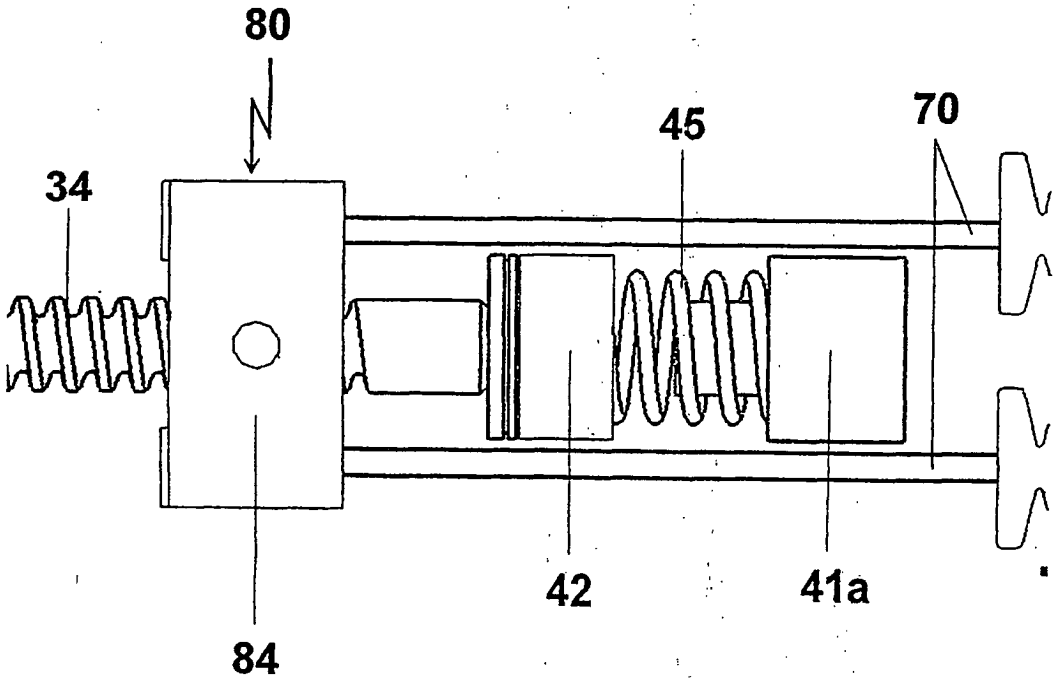

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Figure 5

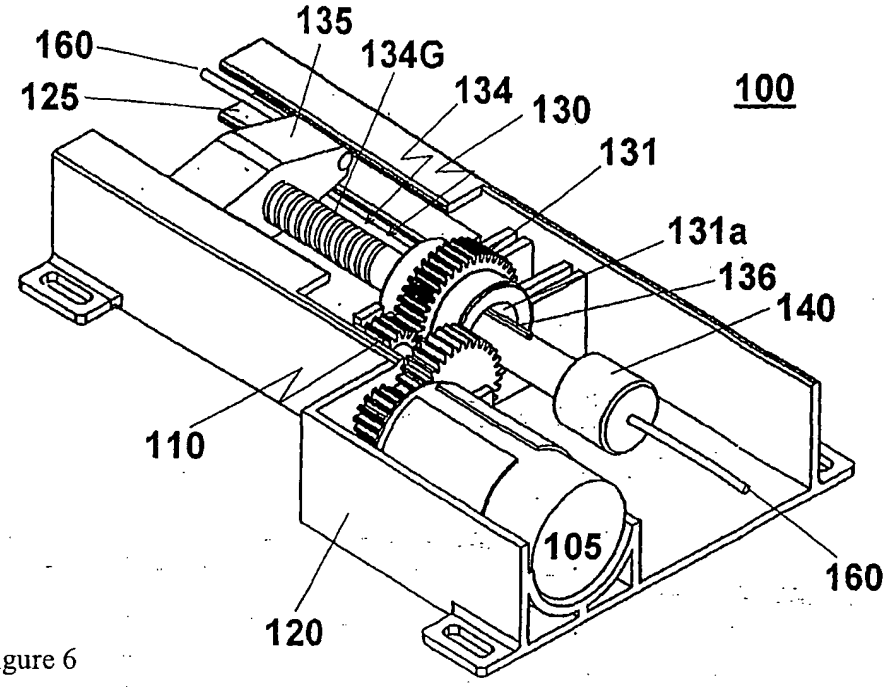

Figure 6

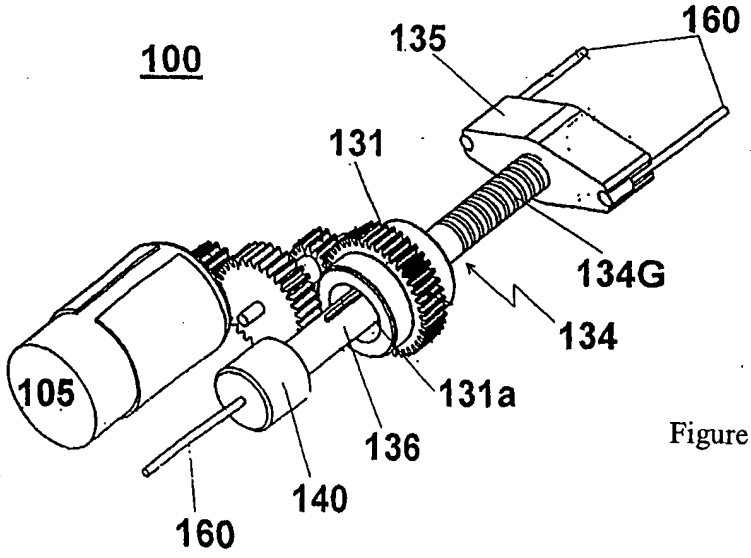

Figure 7

Expediente del abogado n.°: FICO-002/00US **PATENTE**

CESIÓN

Sergio Nieto Gil, con domicilio en C/. Duquesa Villahermosa 139, 11° B, E-50009, Zaragoza, España, y Jaume Prat Terradas, con domicilio en C/. Roselló 492, 2° 2ª, E-08025, Barcelona, España (cada uno de ellos, denominado "Cedente") realizaron una invención (la "Invención") asentada en una solicitud de patente de los Estados Unidos, denominada

MECANISMO CON SENSOR DE CARGA PARA OPERAR FRENOS

que es una:

(1) [] solicitud temporal

(a) [] que se presentará junto con este instrumento; o

(b) [] con el número de solicitud _____, que fue presentada el _____; o

(2) [x] solicitud no temporal

(a) [] que se presentará junto con este instrumento; o

(b) [x] con el número de solicitud 10/617.538, que fue presentada el 11 de julio de 2003.

POR CUANTO, FICO CABLES, S.A., una sociedad debidamente constituida de conformidad con las leyes de España, cuyo lugar principal de actividades comerciales se encuentra en Calle de Josep Pujol, E-08191, Rubí, Barcelona, España (el "Cesionario"), desea adquirir la totalidad de los derechos sobre: la Invención; la solicitud de patente identificada en el párrafo (1) o (2); el derecho a presentar solicitudes de patentes de los Estados Unidos o de otros países sobre la Invención; cualquier solicitud de patente de los Estados Unidos o de otros países que reivindiquen la prioridad de las presentes solicitudes; cualquier derecho temporal u otro tipo de derecho de recibir indemnizaciones, incluidas comisiones, por violaciones anteriores de las presentes solicitudes; y cualquier patente de los Estados Unidos o de otros países que puedan ser otorgadas con motivo de tal Invención o respecto de la misma.

POR ELLO, por una contraprestación válida y suficiente, cuyo recibo se reconoce por el presente, el Cedente ha vendido, cedido y transferido, y por el presente vende, cede y transfiere al Cesionario, sus sucesores, representantes legales y cesionarios, todos los derechos mencionados a continuación, en la medida en que el Cedente no lo haya ya hecho mediante un acuerdo anterior con el Cesionario, o si ya lo hizo mediante un acuerdo anterior con el Cesionario, para confirmar la obligación de hacerlo establecida en ese acuerdo anterior. Los derechos vendidos, cedidos y transferidos son:

(a) la Invención;

(b) la solicitud de patente identificada en el párrafo (1) o (2);

(c) el derecho a presentar solicitudes de patentes de los Estados Unidos o de otros países sobre la Invención, incluidos todos los derechos que emanan del Convenio de París para la Protección de la Propiedad Industrial (Paris Convention for the Protection of Industrial Property) y del Tratado de Cooperación en materia de Patentes (Patent Cooperation Treaty);

(d) cualquier solicitud de patentes de los Estados Unidos o de otros países que reclamen la Invención;

(e) cualquier solicitud de patentes de los Estados Unidos o de otros países en virtud de la cual se reivindique la prioridad de la solicitud de patente identificada en el párrafo (1) o (2), o de cualquier solicitud de patente que reclame la Invención, incluida cualquier división, y continuación total o parcial;

(f) cualquier derecho temporal u otro tipo de derecho de recibir indemnizaciones, incluidas comisiones, respecto de violaciones anteriores de cualquier solicitud de patente identificada en los párrafos precedentes (b) – (e); y

(g) cualquier patente de los Estados Unidos o de otros países que pueda ser otorgada respecto de cualquier solicitud de patente identificada en los párrafos precedentes (b) – (e), incluida cualquier reemisión o renovación de dicha patente.

El Cesionario será titular y gozará de los mencionados derechos, y podrá usarlos en su propio nombre y en nombre de sus sucesores, representantes legales y cesionarios de la misma forma plena y absoluta en que podría haberlo hecho el Cedente si no se hubiera producido esta venta y cesión.

El Cedente manifiesta por el presente al Cesionario, sus sucesores, representantes legales y cesionarios que, a la fecha de suscripción y entrega de este instrumento, o si corresponde, al momento de suscripción del acuerdo anterior, el Cedente es titular legítimo de una participación indivisa en la totalidad de los derechos sobre la Invención, y que la Invención no está sujeta a gravamen alguno, con excepción, si corresponde, de la obligación de realizar una cesión de conformidad con el mencionado acuerdo anterior. Asimismo, el Cedente manifiesta que cuenta con derechos plenos y válidos y facultades legítimas para vender y transferir tales derechos de la forma que se establece en el presente.

El Cedente, por el presente, conviene y acuerda con el Cesionario, sus sucesores, representantes legales y cesionarios, que cederá todo instrumento y documento, prestará todo juramento legítimo, y realizará todo acto que sea necesario o requerido en relación con cualquier proceso tendiente a obtener, mantener, exigir y defender la Invención y las mencionadas solicitudes y patentes, incluidos procesos de interferencia, sin cargo para el Cesionario, sus sucesores, representantes legales y cesionarios, pero a su coste.

El Cedente, por el presente, solicita a los abogados de COOLEY GODWARD LLP que completen los espacios precedentes con la fecha de presentación, el número de solicitud y el número de expediente del abogado correspondiente a la solicitud identificada en el párrafo (1) o (2) si fuera conocido, y los autoriza a realizar dicho acto.

El Cedente, por el presente, solicita al Director de la Oficina de Patentes que emita tales patentes de los Estados Unidos a favor del Cesionario para uso exclusivo de éste, sus sucesores, representantes legales y cesionarios, y en su nombre.

Fecha: _____ Por: _____
Sergio Nieto Gil

Attorney Docket No: FICO-002/00US **PATENT**

ASSIGNMENT

Sergio Nieto Gil, residing at C/. Duquese Villahermosa 139, 11°B, E-50009 Zaragoza, Spain, and Jaume Prat Terradas, residing at C./ Roselló 492, 2°2a, E-08025 Barcelona, Spain, (each referred to as "Assignor") have made an invention (the "Invention") set forth in an application for patent of the United States, entitled

MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE

and which is a:

(1) [] provisional application

(a) [] to be filed herewith; or

(b) [] bearing Application No. , and filed on ; or

(2) [x] non-provisional application

(a) [] to be filed herewith; or

(b) [x] bearing Application No. 10/617,538, and filed on July 11, 2003.

WHEREAS, FICO CABLES, S.A., a corporation duly organized under and pursuant to the laws of Spain, and having its principal place of business at Calle de Josep Pujol, E-08191 Rubi, Barcelona, Spain (the "Assignee"), is desirous of acquiring the entire right, title, and interest in: the Invention; the application for patent identified in paragraph (1) or (2); the right to file applications for patent of the United States or other countries on the Invention; any application for patent of the United States or other countries claiming priority to these application; any provisional or other right to recover damages, including royalties, for prior infringements of these applications; and any patent of the United States or other countries that may be granted therefor or thereon.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if the Assignor has already done so via a prior agreement with the Assignee then in confirmation of any obligation to do so in said prior agreement, the Assignor has sold, assigned, transferred, and set over, and by these presents does sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns, the Assignor's entire right, title, and interest in:

(a) the Invention;

(b) the application for patent identified in paragraph (1) or (2);

(c) the right to file applications for patent of the United States or other countries on the Invention, including all rights under the Paris Convention for the Protection of Industrial Property and under the Patent Cooperation Treaty;

(d) any application for patent of the United States or other countries claiming the Invention;

(e) any application for patent of the United States or other countries claiming priority to the application for patent identified in paragraph (1) or (2) or any application for patent claiming the Invention, including any division, continuation, and continuation-in-part; and

(f) any provisional or other right to recover damages, including royalties, for prior infringements of any application for patent identified in the proceeding paragraphs (b)-(e); and

(g) any patent of the United States or other countries that may be granted for or on any application for patent identified in the preceding paragraphs (b) – (e), including any reissue and extension of said patent.

The above-granted rights, titles, and interests are to be held and enjoyed by the Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale and assignment not been made.

The Assignor hereby represents to the Assignee, its successors, legal representatives, and assigns, that, at the time of execution and delivery of these presents, or if applicable, at such time said prior agreement was executed, the Assignor is a lawful owner of an undivided interest in the entire right, title, and interest in and to the Invention, that the Invention are unencumbered, except, if applicable, by obligation to assign in accordance with said prior agreement, and that the Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth herein.

The Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that the Assignor will sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done in connection with any and all proceedings for the procurement, maintenance, enforcement and defense of the Invention, said applications, and said patents, including interference proceedings, without charge to the Assignee, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal representatives, and assigns.

The Assignor hereby authorizes and requests the attorneys of COOLEY GODWARD L.L.P. to insert in the spaces provided above the filing date, the application number, and the attorney docket number of the application identified in paragraph (1) or (2) when known.

The Assignor hereby requests the Commissioner of Patents to issue said patents of the United States to the Assignee for the sole use and behalf of the Assignee, its successors, legal representatives, and assigns.

Date: _____ By: _____
Sergio Nieto Gil

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Sherry Bitler
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UNITED STATES

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SIGN: Sherry Bitler
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Sergio Nieto Gill

C/. Duquesa Villahermosa 139 11 B

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City Zaragoza State Province

Country Spain ZIP Postal Code 50009

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3 To

Recipient's Name Sherry Bitler Phone 7205664019

Company Cooley Godward

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City Broomfield State Province CO

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Legal Docs not for resale			$0 —

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Brogan, Jim

From: Manuel Moreno [mmt@bufetemorenotorres.com]
Sent: Tuesday, October 19, 2004 11:12 AM
To: Ulrika.Voss@bardehle.de
Cc: fcr.jprat@ficosa.com; fcr.jjornet@ficosa.com; jbrogan@cooley.com
Subject: USA PATENTS/SERGIO NIETO

bufete | moreno-torres

Dear Mr/Ms

Further to the conversation I had this morning with Mr. Jornet please note that this email is meant in the most positive spirit of collaboration.

With sufficient information and understanding I am sure we are all willing to adjust our positions. And my client´s positions are as follows:

1.- Mr Nieto has decided to sign both USPTO applications refered to PCT/EP02/00596 and PCT/EP01/07341. In this case, we would require reasonable compensation to the inventor for his time reviewing the applications and other costs such as legal fees levied by his solicitors. The compensation would be 9.000 euros.

2. Mr Nieto is in a position to sign both "assignment contracts" over the patents referred above. In this case, the assignor (Mr. Nieto) would assign, sell and transfer to the assignee (FICOSA) the entire right, title and interest to said inventions so far as concerns the United States. The price of the assignment would be 40.000 euros.

3. A jointly declaration of confidentiality should be signed to avoid the agreement be disclosured to third parties in case the above mention assignment (2) is accepted by FICOSA.

We do hope this information be useful to achieve an agreement. Please do not hesitate to contact us if you have further questions.

Yours faithfully,

bufete | moreno-torres

Manuel Moreno Torres
Abogado

EXHIBIT B

Moreno-Torres le informa de que la finalidad del tratamiento de sus datos es poder realizar las comunicaciones que sean necesarias para el cumplimiento de las relaciones entabladas entre ambas partes

AVENIDA DIAGONAL 510 , 3ºª
08006 BARCELONA
ESPAÑA
http://www.solmuntanola.com
e-mail: admon@solmuntanola.com
TEL: 34 934 874 516
FAX: 34 934 879 542

SERGIO NIETO GIL
C/ Duquesa Villahermosa 139, 11° B
50009 ZARAGOZA

CONDUCTO: Burofax

DATE: December 24, 2004

RE: PCT/EP02/00596 "Mecchanism with load sensor for operating a brake" and PCT/EP01/07341 "Electrically powered parking brake" in the name of FICO CABLES, S.A.

Dear Mr. Nieto,

We write to you on behalf of Fico Cables, S.A. who appointed our lawfirm as their legal representatives for Intellectual Property matters worldwide.

As you are aware from the correspondences exchanged to date with Fico Cables and their German Patent attorneys -Bardehle, Pagenberg- and their American lawyers - Renner Otto and Cooley Goodward LLP, which you acknowledged safe receipt of, the PCT/EP02/00596 entered into the national phase in the US on July 11, 2003 as US Serial Nº 10/617,538 and the PCT/EP01/07341 on March 2003 as US Serial Nº 10,363,613.

For that reason, in the past two years you have received several times and acknowledged receipt of the shipment of some documents concerning each PCT application, which need to be filed, duly signed by you as an inventor of the patents, along with the patent applications at the United States Patent and Trademark Office (USPTO) in order to complete the filings.

Said documents are an Inventor Declaration and an Assignment of Rights, which require the signature of each co-inventor of the subject patents.

Please note that these documents are a formal requeriment of the US Patent Law and need to be filed **as soon as possible** in order to permit the normal follow-up of the patent applications.

The assignment of rights document is just a declarative step since **the patent rights are exclusively owned by Fico Cables, S.A.** which was the company that employed you at the time the inventions were developped, as further explained below.

EXHIBIT C

According to the Spanish Patent Act -Art.15.1-, which is the applicable law to the case at hand since you are a Spanish citizen domiciled in Spain, the employer company, Fico Cables, S.A. is also a Spanish company based in Spain and the invention was created within the Spanish territory; the inventions developped by an employee during his labour contract which are explicit or implictly related to the research content of his contract, pertain to the employer.

Furthermore, the Spanish Law establishes in its Art. 14 that the inventor has the right to be mentioned as such in the patent. A PCT patent application which designates Spain has the same legal effects and is governed by the Law of Spain, according to the Real Decree 1123/1995, as if it were a Spanish patent application.

According to these legal principles, since you were contracted by Fico Cables, S.A. as an engineer to undertake specific research and development of spare parts for the automobile industry, in particular brakes and cables which is the main business activity of Fico Cables and the subject inventions refer to car brakes, **the rights to the inventions developped by you along with the other co-inventor, Mr. Jaume Prat, belong to the employer Fico Cables, S.A.**

Furthermore please recall that at the time of filing of the priority German applications and the subsequent PCT applications no assignment of rights was due since for the above exposed legal reasoning these rights had always belong to the titleholder of the applications, Fico Cables, S.A.

Moreover, we would like to point out that the Spanish Estatute of the Employees (Estatuto de los Trabajadores) which is the general rule applying to all labour relationships establishes as a basic duty of employees the need to comply with the precise obligations of their labour post according to the **principles of good faith and due diligence.**

In addition, the Spanish Patent Act states in its Art. 18.2 that both the employer and the employee shall collaborate in as much as necessary for the effectiveness of the rights contained in the Patent Act, **refraining from any actuation which may jeopardize said rights.**

In view of the foregoing, we kindly request you to reconsider your non-cooperative attitude, by signing the enclosed documents and returning them to our office **not later than December 30, 2004** in order to avoid any further detrimentals to our client's patent rights which have been in the limbo for the past two years due to the lack of filing of the mentioned declarations of inventorship and assignments of rights.

In absence of receiving within the due date the Declarations of Inventor and Assignments of rights concerning both patent applications as above-referenced, we will understand that you refuse to sign them and we will be forced to strongly recommend our client to initiate any legal actions available to recover the damages and costs caused to date due to your absence of collaboration.

In any event, Fico Cables, S.A. reserves their rights to initiate any legal actions available.

Yours sincerely,

Lara Grant Segovia

C/C. BUFETE MORENO-TORRES
A/A Mr. Manuel Moreno Torres
Paseo de Pamplona, Nº 1, 7º A
50004 Zaragoza

SOL MUNTAÑOLA & ASOCIADOS
Att. Ms. Lara Grant
Avenida Diagonal, Nº 510, 3º
08006 Barcelona
Spain

Zaragoza, December 30, 2004

Dear Ms. Grant,

I refer to your fax letter in relation to Mr. Nieto and the **PCT/EP02/00596 and PCT/EP01/07341.**

Once more I have to remind you that you offered my client, Mr. Nieto, an economic compensation for the signature of the sent documents but that until now there has been no agreement on its amount.

Furthermore, I remind you that your comments on the Spanish Law are as correct as the diligence due which is imposed to your company in protecting their invention. In consequence, once signed the document of finalisation of the contract, Mr. Nieto was released from all obligations concerning your client.

Moreover, it is quite surprising that on the one hand you offer an economic compensation to Mr. Nieto and on the other you threaten him with the filing of suits before the Courts, even when according to the US Law the intervention of Mr. Nieto is neither indispensable nor even necessary ¿what harm can Mr. Nieto make to your client when he would be the only harmed if he does not appear as an inventor?

Finally, I reiterate our will to solve the present incident even with the initiation of a mediation procedure through the Mediation and Arbitration of OMPI.

I look forward to hearing from you. Best regards,

Manuel Moreno-Torres

AVENIDA DIAGONAL 510 , 3ºª
08006 BARCELONA
ESPAÑA
http://www.solmuntanola.com
e-mail: admon@solmuntanola.com
TEL: 34 934 874 516
FAX: 34 934 879 542

BUFETE MORENO-TORRES
A/A Mr. Manuel Moreno Torres
Paseo de Pamplona, Nº 1, 7º A
50004 Zaragoza
España

CONDUCTO: Burofax

DATE: January 3, 2004

RE: PCT/EP02/00596 "Mecchanism with load sensor for operating a brake" and PCT/EP01/07341 "Electrically powered parking brake" in the name of FICO CABLES, S.A.

Dear Mr. Moreno,

We acknowledge receipt of your letter sent on December 30, which was received in our offices on December 31, 2004.

We regret to hear that your client is maintaining his non-cooperative and groundless position, whose reasons we ignore.

It is untrue that neither Fico Cables, S.A. nor ourselves, as their legal representatives, had offered your client an economic compensation for the signature of the documents required to be filed at the USPTO, and will ever offer such compensation, since as it was already and fully explained in our letter of December 24 there is no legal basis at all for such compensation.

Furthermore, you seem to ignore the legal principles stated in our mentioned previous letter which are applicable in the present case in order to request your client the signature of the subject documents even if his labour relationship terminated, by his express will, some time ago.

On the contrary, Mr. Nieto's hindering attitude which is impeding our client, Fico Cables, S.A. the obtainance meanwhile of the grant of their patent rights and the impossibility of enforcing said rights against unlawful competitors, along with the time and costs incurred by our client in the past two years in trying unsucessfully to obtain the mentioned documents signed by Mr. Nieto, represent perfect assessable damages.

Taking into account the foregoing, we appeal to Mr. Nieto's common sense and request him kindly to send us **by January 6, 2004** the subject documents duly signed and dated.

In absence of receiving the referred documents duly signed by the due date, we shall initiate immediately any legal actions available in order to recover the damages caused by Mr. Nieto.

We look forward to hearing from you. Best regards

Lara Grant Segovia

bufete | moreno-torres

SOL MUNTAÑOLA & ASOCIADOS
Atn: Lara Grant Segovia
Avenida Diagonal, número 510, 3°
08006 Barcelona (Barcelona-ESPAÑA)

january the 7th 2005

Ref: PCT / EPO2 / 00596 y PCT / EPO1 / 07341

Dear Ms Grant,

Please bear in mind that Mr. Nieto is willing to execute the inventor's declaration for both patents applications.

Once finished his labor relationship (and signed the settlement) on March 2.001, 31th no longer obligations were established between the parties.

My client developed his work at Ficocables S.A. eficiently with "Training Contract" and no special requirements were included accordingly the standard format stablished by Spanish Law.

Since the Ficocables S.A has refused to offer reasonable compensation (at the assignment contract is offered one dollar which is simply ridicule) to the inventor for his time in reviewing the application, we are willing to mediate with your client in order to achieve an alternative resolution.

Our score is to obtain reasonble compensation for the following:

1.1. Legal costs: specialists in spanish and american patent law;

1.2. Mr. Nieto's dedication to read and to analyse the sucessives comunications from Ficocables S.A. and its representatives, which have been taking place until now;

1.3. the obligations and duties which Mr. Nieto assumes in the assignment of applications for USA patents.

1.4. the value of the service and the grant of his signature.

Kind regards,

12/12/5

Manuel Moreno-Torres

P° Pamplona n° 1, 7° A 50.004 Zaragoza Tlf: 902.362.175 Fax: 902.364.593

Attorney Docket No: FICO-002/00US PATENT

Express Mail Label Number: EV 459985836 US
Date of Deposit: January 24, 2005

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: January 24, 2005 By: Sherry Duncan Bitler
Sherry Duncan Bitler

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Sergio NIETO GIL, et al.

		Examiner:	[Not Yet Assigned]
Serial No.:	10/617,538	Art Unit:	3683
Confirmation No.:	3497	Filed:	July 11, 2003

FOR: MECHANISM WITH LOAD SENSOR FOR OPERATING A BRAKE

Mail Box Missing Parts
Commissioner for Patents
P.O. Box 1450
Arlington, VA 22313-1450

DECLARATION SUPPORTING PETITION UNDER 37 CFR §1.47(a)

I, Lara Grant, declare and state as follows:

1. I am an attorney in the law firm of Sol Muntañola & Asociados and am resident in the Barcelona office of the firm.

2. Our firm represents Fico Cables, S.A., ("Fico") in various intellectual property matters, and I have represented Fico in connection with obtaining signatures on a Declaration and Assignment concerning the above-referenced application.

3. I have been informed that Sergio Nieto-Gil ("Nieto-Gil") and Jaume Prat Terradas are co-inventors of the above-identified patent application.

4. One of the co-inventors, namely Nieto-Gil, has refused to sign a Declaration under 37 CFR § 1.63 and an Assignment for the above-identified patent application.

5. Nieto-Gil was a former employee of Fico and has a duty to assign the above-identified patent application to Fico based upon his employment agreements with Fico. A copy of Nieto-Gil's employment agreements with Fico are attached as Exhibit A and A bis.

6. My attempts to have Nieto-Gil sign a Declaration and Assignment for the above-referenced application are summarized below.

7. On October 21, 2004, I contacted Manuel Moreno Torres, counsel for Nieto-Gil, concerning the above-referenced application. During that conversation, Mr. Torres and I discussed Nieto-Gil's demand for compensation in return for executing a Declaration and Assignment relating to the application. In particular, Mr. Torres informed me that Nieto-Gil would sign the Declaration and Assignment, if he were adequately compensated for providing the signatures, and I informed Mr. Torres that Fico, as Nieto-Gil's former employer, was not obligated to provide further compensation to have the documents signed as the patent rights belong according to the applicable Law to Fico at the time the invention was developed. Furthermore, I reminded Mr. Torres the legal duties established in the Spanish Patent Law, the applicable law to the case at hand, applying to Nieto-Gil to cooperate with Fico in order to ensure the effectiveness of the patent rights and to refrain from any actuation which may jeopardize the referred patent rights.

8. Attached as Exhibit B is a copy and translation of a letter dated November 8, 2004, that I received from Mr. Nieto-Gil concerning the above-referenced application.

9. Attached as Exhibit C is a copy of a letter dated December 24, 2004, that I sent to Mr. Nieto-Gil and his lawyer Mr. Torres concerning the above-referenced application and in response to Mr. Nieto-Gil's November 8 letter.

8. Attached as Exhibit D is a copy and translation of a letter dated December 30, 2004, that I received from Mr. Torres in response to my December 24 letter.

9. Attached as Exhibit E is a copy of a letter dated January 4, 2005, that I sent to Mr. Torres in response to his December 30 letter.

10. Attached as Exhibit F is a copy of a letter dated January 7, 2005, that I received from Mr. Torres in response to my January 3 letter.

11. As is made clear in Exhibits B, C, D, E and F, Nieto-Gil has refused several times to sign a Declaration and Assignment for the above-referenced application absent receiving

significant additional compensation. Further, at least for now, Fico is unwilling to provide such compensation, because it has no legal obligation to do so and, more importantly, because Nieto-Gil has an obligation to sign the Declaration and Assignment based upon his prior employment agreements.

12. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true. These statements were made with the knowledge that willful false statements, and the like, so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Lara Grant

C:\IETemp\Temporary Internet Files\OLK2F\4076.Edited Grant Declaration re PETITION UNDER 37 CFR 1.47(a).DOC
1/21/05

CONTRACTE DE TREBALL EN PRÀCTIQUES

A L'EMPARA DE L'ARTICLE 11 DE L'ESTATUT DELS TREBALLADORS, D'ACORD AMB LA REDACCIÓ PROPOSADA A LA LLEI 63/1997, DE 26 DE DESEMBRE (BOE de 30 de desembre)

Codi del contracte

- [X] A temps complet — 3 6
- [ ] A temps parcial, sense prestació tots els dies feiners — 0 8
- [ ] A temps parcial, amb prestació tots els dies feiners — 2 8

Segell de registre de l'oficina de treball de la Generalitat

6 FEB. 2000
2347

L'EMPRESA

Núm. d'inscripció a la Seguretat Social (compte de cotització): Codi prov. 08 | Número 207233 | Dig. contr. 63
Règim de la Seguretat Social: GENERAL

Nom i cognoms: VICTORINO SAOLANO SALLAN	DNI: 37.252.992F	En concepte d': DIRECTOR	
Nom o raó social: FICOCABLES,S.A.	CIF/NIF: A 08113508	Activitat econòmica: F.COMP.AUTOM.	AE
Domicili social: AVDA. JOSEP PUJOL, S/N	Localitat: RUBI	C. postal: 08191	Nre. total de treballadors/es en plantilla
Adreça del centre de treball: AVDA. JOSEP PUJOL, S/N	Localitat: RUBI	C. postal: 08191	Nre. total de treballadors/es del centre de treball

EL/LA TREBALLADOR/A

Nom i cognoms: SERGIO NIETO GIL		NASS: 8/11098953-85	Nivell d'estudis acabats: Ingeniería — Codi:
Data de naixement: 19/05/75	DNI: 25.465.856A	Domicili: c/Duquesa Villahermosa,139 50009ZARAGOZA	

Amb l'assistència legal, si escau, d' ....., amb el DNI núm. ....., en qualitat d' .....

DECLAREN

a) Que el/la treballador/a té el títol [3] d' .....Ingeniería Industrial..... o està en condicions d'obtenir-lo, ja que en data .....22/12/99..... ha acabat els estudis corresponents que el/la capacitan per a la pràctica professional objecte d'aquest contracte [4].

b) Que no han passat 4 anys, o 6 anys en el cas que el/la treballador/a tingui reconeguda la condició de discapacitat/ada, des de l'acabament o la revalidació dels estudis, exclòs de l'esmentat termini, si escau, el temps dedicat al servei militar o a la prestació social substitutòria [5], el compliment del qual va tenir lloc des d' ..... fins a .....

c) Que el/la treballador/a té reconeguda la condició de discapacitat/ada, tal com acredita el certificat expedit per ..... [6].

d) Que el/la treballador/a no ha estat contractat/ada en pràctiques en aquesta o en una altra empresa per un temps superior a 2 anys.

Que compleixen els requisits exigits per subscriure aquest contracte i, en conseqüència, decideixen formalitzar-lo d'acord amb les següents

CLÀUSULES

1. La persona contractada prestarà els seus serveis com a [7] .....Ingeniero....., en pràctiques, inclòs/osa en el grup professional [8] i en la categoria o el nivell d' .....Ingeniero....., d'acord amb el sistema de classificació professional de l'empresa.

---

[1] Director/a, gerent, etc
[2] Pare, mare, tutor/a, persona o institució que el/la tingui al seu càrrec.
[3] Diplomat/ada universitari/ària, llicenciat/ada universitari/ària, tècnic/a o tècnic/a superior de la professió corresponent, o títol oficialment reconegut com a equivalent a algun dels anteriors; cal especificar-hi el títol professional concret (llicenciat/ada en dret, econòmiques, etc).
[4] El/La treballador/a ha de lliurar a l'empresari/ària una fotocòpia compulsada del títol, el certificat de la seva sol·licitud o al certificat acreditatiu que ha acabat els estudis
[5] S'ha d'acreditar amb l'exhibició de la cartilla militar o del document acreditatiu del compliment de la prestació social substitutòria.
[6] S'ha d'emplenar només en cas que el/la treballador/a tingui la condició de discapacitat/ada, i s'ha d'especificar l'organisme oficial que ha emès aquest certificat.
[7] Indiqueu la professió.
[8] Assenyaleu el grup professional i la categoria o el nivell professional que correspongui, segons el sistema de classificació professional vigent a l'empresa.

2. La jornada de treball és d ......cuarenta........ hores [8] ....semanales. prestades d ....Lunes.............. a Viernes..............
3. [10] La prestació del treball es realitzarà en els mesos ...., en les setmanes .... i en els dies .... a raó d .... hores, distribuïdes de la manera següent: ....
4. El/La treballador/a ha de percebre una retribució total [11] d ....221.429............................ pessetes brutes (5) ....mensuales.................................. que es distribueix en els conceptes salarials següents [12] Salario Convenio y Plus personal ....
5. La durada del contracte és [13] d ....doce meses.............. i s'estén des d ....01/02/00..... fins a .....31/01/01.......
La suspensió del contracte per les causes previstes a l'article 45 del text refós de la Llei de l'estatut dels treballadors si/no [14] comportarà l'ampliació de la durada del contracte.
6. El contracte s'extingirà per l'expiració del temps convingut, inclòs, si s'escau, el de les pròrrogues que s'acordin.
7. Una vegada finalitzat aquest contracte, l'empresa s'obliga a expedir un certificat al/a la treballador/a en què constin la durada de les pràctiques, el lloc o els llocs de treball ocupats i les tasques principals realitzades en cadascun.
8. Per a tot el que no estigui previst en aquest contracte, cal actuar d'acord amb el que disposa la legislació vigent que hi sigui aplicable i, particularment, amb el que disposa l'article 11 del text refós de la Llei de l'Estatut dels treballadors, aprovat pel Reial decret legislatiu 1/1995, de 24 de març (BOE de 29 de març), i el Reial decret 2317/1993, de 29 de desembre.
9. Aquest contracte es registrarà a l'Oficina de Treball de la Generalitat d ....RUBI(BARNA)..................................... i l'empresari/ària ha de comunicar a aquesta Oficina les pròrrogues que s'acordin, com també la finalització del contracte.

CLÀUSULES ADDICIONALS [15]

El trabajador prestará sus servicios en el turno partido, de 08.00h. a 13.15h. y de 14.35h. a 17.15h. con los descansos que establece la Ley.

Si las circunstancias de la producción lo requieren, y a petición de la Dirección - de la empresa, pasará a prestar sus servicios en el truno de mañana ó tarde.

Se establece un periodo de prueba de seis meses.

I perquè consti, s'expedeix aquest contracte en 3 exemplars, que signen les parts interessades, en el lloc i la data que s'indica a continuació.

Rubí(Barna) ...., 28 d ....enero.......... de 2000

El/La treballador/a, El/La representant de l'empresa, El/La representant legal del/de la menor, si escau

El representante sindical

---

[9] Setmanals o anuals.
[10] Ha d'emplenar-se si el contracte se subscriu a temps parcial.
[11] Diàries, setmanals o mensuals, no inferior a la que estableix el conveni col·lectiu per als/a les treballadors/ores en pràctiques, ni, si no n'hi ha, al 60 o 75 % durant el primer o el segon any de vigència del contracte, respectivament, del salari fixat en el conveni per a un/una treballador/a que ocupi el mateix lloc de treball o equivalent. En cap cas no pot ser inferior al salari mínim interprofessional.
[12] Salari base i complements salarials.
[13] No inferior a 6 mesos ni superior a 2 anys.
[14] Ratlleu el que no escaigui.
[15] Si s'estableix un període de prova, no pot ser superior a 1 mes per als/a les titulats/ades de grau mitjà ni de 2 mesos per als/a les titulats/ades de grau superior.

CONTRATO DE TRABAJO POR TIEMPO INDEFINIDO A TIEMPO COMPLETO

CELEBRADO AL AMPARO DE LA LEY 55/1999, DE 29 DE DICIEMBRE (BOE de 30 de diciembre)

Generalitat de Catalunya
Departament de Treball
Oficina de Treball de la Generalitat
REGISTRAT EL DIA
08.02.01 002432
Aquesta diligència no suposa cap pronunciament sobre el contingut del contracte

Código del contrato: 21

UNIÓN EUROPEA
Fondo Social Europeo

- [X] Jóvenes desempleados menores de 30 años
- [ ] Personas desempleadas inscritas en la Oficina de Trabajo durante 12 meses o más
- [ ] Personas desempleadas mayores de 45 años
- [ ] Mujeres desempleadas subrepresentadas
- [ ] Personas desempleadas perceptoras del subsidio de paro en favor de trabajadores/ras incluidos en el régimen especial agrario de la Seguridad Social que también estén incluidos en alguno de los colectivos anteriores

POR LA EMPRESA

Nº de inscripción a la Seguridad Social (cuenta de cotización)	Cód. prov.	Número	Dig. contr.
	08	207233	63

Régimen de la Seguridad Social

D/Dª: VICTORINO SOLANO SALLAN	DNI: 37252992F	En concepto [1] de: DIRECTOR	
Nombre o razón social: FICOCABLES S.A.	CIF/NIF: A 08113508	Actividad económica: FAB.COMP.AUTOM.	AAE
Domicilio social: AV.JOSEP PUJOL S/N	Localidad: RUBI	C. postal: 08191	Nº total de trabajadores/ras en plantilla
Domicilio del centro de trabajo: AV.JOSEP PUJOL S/N	Localidad: RUBI	C. postal: 08191	Nº total de trabajadores/ras en el centro de trabajo

EL TRABAJADOR/A

D/Dª: SERGIO NIETO GIL		Nº de afiliación a la SS: 8/1109895385	Nivel de estudios terminados: INGENIERIA — Código
Fecha de nacimiento: 19/05/75	DNI: 25465856A	Domicilio: RAMON Y CAJAL, 19 08210 BARBERA DEL VALLE	

Con la asistencia legal, en su caso, de D/Dª .... , DNI .... en calidad [2] de ....

DECLARAN

Que reúnen las condiciones necesarias para celebrar el presente contrato de trabajo y, por tanto, acuerdan formalizarlo con arreglo a las siguientes

CLÁUSULAS

1. El trabajador/a prestará sus servicios como [3] ....INGENIERO.................... incluido en el grupo profesional, categoría o nivel profesional de ....INGENIERO.............. de acuerdo con el sistema de clasificación profesional vigente en la empresa, en el centro de trabajo ubicado en RUBI (BARCELONA)
2. La jornada de trabajo será a tiempo completo y de CUARENTA.. horas semanales, prestadas de ...LUNES........ a ...VIERNES............... con los descansos establecidos legal o convencionalmente.
3. La duración del presente contrato será indefinida, iniciándose la relación laboral con fecha ...02/02/01........., y se establece un período de prueba de [4] ....
4. El trabajador/a percibirá una retribución total de ....221.428...pesetas brutas [5] ...MENSUALES............, que se distribuye en los siguientes conceptos salariales [6]: SALARIO CONVENIO Y PLUS PERSONAL
5. La duración de las vacaciones anuales será de [7] ...TREINTA DIAS NATURALES......................

[1] Director/a, gerente, etc.
[2] Padre, madre o representante legal.
[3] Indicar la profesión
[4] Habrá de respetarse, en todo caso, lo dispuesto en el artículo 14.1 del Texto Refundido de la Ley del Estatuto de los Trabajadores, aprobado por el Real Decreto Legislativo 1/1995, de 24 de marzo (BOE de 29 de marzo)
[5] Diarias, semanales, mensuales
[6] Salario base, complementos salariales, pluses.
[7] Mínimo: 30 días naturales

6. Si se reúnen los requisitos establecidos en el artículo 28 de la Ley 55/1999 y no se encuentran en alguna de las cau de exclusión del apartado 5 del citado artículo, la empresa se bonificará en las cuotas empresariales a la Seguri Social por contingencias comunes*:

[X] a) Jóvenes desempleados inscritos en la oficina de Trabajo menores de 30 años: 20% durante el período de meses siguientes al inicio de la vigencia del contrato. Cuando las contrataciones se realicen con mujeres bonificación será del 25%.

[ ] b) Personas desempleadas inscritas ininterrumpidamente en la oficina de Trabajo durante un período mínimo 12 meses: 50% durante el primer año de vigencia del contrato y 45% durante el segundo año de vigencia mismo. Cuando las contrataciones se realicen con mujeres desempleadas, la bonificación será del 60% dura el primer año y del 55% durante el segundo año.

[ ] c) Personas desempleadas mayores de 45 años: 50% durante el primer año de vigencia del contrato y 4 durante el resto de la vigencia del mismo. Cuando las contrataciones se realicen con mujeres desemplead la bonificación será del 60% durante el primer año y del 55% durante el resto de la vigencia del contrato.

[ ] d) Mujeres subrepresentadas que no reúnan el requisito de permanecer inscritas ininterrumpidamente en la ofic de Trabajo por un período mínimo de 12 meses y sean menores de 45 años: 35% durante el primer año vigencia del contrato y 30% durante el segundo año de vigencia del mismo.

[ ] e) Personas desempleadas perceptoras del subsidio por desempleo en favor de los trabajadores/ras incluidos el régimen especial agrario de la seguridad social que, a su vez, están incluidos en alguno de los colectivo que se refieren las letras a), b), c) o d): 90% durante el primer año de vigencia del contrato y 85% durante segundo año de vigencia del mismo.

7. Al presente contrato le será de aplicación la disposición adicional primera de la Ley 63/1997, de 26 de dici mb

[X] Sí [ ] No

En caso afirmativo:

- que reúnen los requisitos y no se encuentra en alguna de las causas de exclusión de la citada disposición. Señ el colectivo al que pertenece el trabajador/a:

[X] Jóvenes de 18 a 29 años [ ] Mayores de 45 años

[ ] Personas desempleadas de larga duración [ ] Personas minusválidas

8. En lo no previsto en este contrato, se estará a la legislación vigente que resulte de aplicación, y, en particular a dispuesto en el Texto Refundido de la Ley del Estatuto de los Trabajadores, aprobado por el Real Decreto Legislati 1/1995, de 24 de marzo (BOE de 29 de marzo), y, en su caso, a la Ley 63/1997, de 26 de diciembre (BOE de 30 diciembre), y a la Ley 55/1999, de 29 de diciembre (BOE de 30 de diciembre).
Asimismo le será de aplicación lo dispuesto en el Convenio Colectivo de ....PROVINCIAL DEL METAL.....

9. El presente contrato quedará registrado en la Oficina de Trabajo .....RUBI (BARCELONA).....

10. Ambas partes se comprometen a comunicar el fin de la relación laboral a la Oficina de Trabajo cuando ésta produzca, de conformidad con lo establecido en el artículo 42.3 de la Ley 51 /1980, de 8 de octubre, básica empleo.

CLÁUSULAS ADICIONALES

EL TRABAJADOR PRESTARA SUS SERVICIOS EN EL TURNO PARTIDO DE 08H.A 13:15H. Y DE 14:35H.A 17:15H. CON LOS DESCANSOS QUE ESTABLECE LA LEY.
SI LAS CIRUCNSTANICAS DE LA PRODUCCION LO REQUIEREN Y A PETICION DE LA DIRECCION DE LA EMPRESA PASARA A PRESTAR SUS SERVICIOS EN EL TURNO DE MAÑANA, TARDE.

Y, para que así conste, se extiende este contrato por triplicado en el lugar y fecha a continuación indicados, firman las partes interesadas.

.....RUBI..... de 2... de ...FEBRERO..... de ..2001..

El/la trabajadora, El/la representante de la empresa, El/la representante legal del/de la menor, si proce

EL REPRESENTANTE SINDICAL

* Ponga una X en la casilla que corresponda.

FICO CABLES,S.A.
Atn: Jordi Jornet Vidal
Polígono Industrial Can Magarola c-17,km 13
08100 Mollet del Vallés (Barcelona-Spain)

Utrillas, 8 de noviembre de 2004

Muy Señor mío,

Me refiero a la petición de su compañía en relación a las patentes : **PCT / EPO2 / 00596** y **PCT / EPO1 / 07341**

Les recuerdo que hace ya mas de dos años que dejé de prestar mis servicios laborales en su empresa, sin que se estipulara en el contrato de trabajo condición accesoria alguna que me vinculara a su compañía más allá de la extinción del mismo.

Asimismo les recuerdo que durante el periodo que se mantuvo nuestra relación laboral, como trabajador en "prácticas", participé activamente en la elaboración de dos patentes toda vez que el responsable del equipo de investigación abandonó la misma nada más incorporarme a ésta, viéndome abocado a dirigir el trabajo.

Por ello, también debo insistirle que mi prestación laboral excedió con mucho el objeto y la finalidad de nuestro contrato laboral en prácticas, así como que mi aportación personal a las invenciones referidas fue insustituible, o cuando menos esencial.

Que efectivamente FICOSA me ha requerido para que revise determinada documentación legal referido al ámbito del derecho estadounidense y, que igualmente, me ha requerido para que una vez estudiado firme y ceda determinados derechos a la compañía por importe de un dólar estadounidense.

No tengo que recordarles que mi formación técnica como ingeniero me impide adentrarme en los entresijos legales máxime si se refieren al derecho norteamericano, por lo que me he visto obligado a consultar abogado especialista en la materia.

En esta situación lo más curioso es que FICOSA ni siquiera ha contestado o atendido al requerimiento de mi abogado para iniciar una conversación/negociación con su compañía que permita, cuanto menos, llegar a un acuerdo económico en compensación de los costes de asesoramiento legal en España y en Estados Unidos así como por la cesión de los derechos que se me solicita.

Que a pesar de todo lo expuesto, mi intención no es otra que la de llegar a un acuerdo que me permita acceder a su petición.

A la espera de noticias suyas, reciban un cordial saludo,

Sergio Nieto Gil

FICO CABLES, S.A.
A/A Jordi Jornet Vidal

Utrilla, november 8, 2004

Dear Sir,

I refer to the petition of your company in relation to PCT/EP02/00596 and PCT/EP01/07341.

I remind you that since more than two years I ceased my labour services in your company, without being stipulated in the contract any accesory condition which vinculates me to the company after the expiry of the same.

Furthermore I remind you that during the period in which our labour relationship was maintained, as a trainee, I actively participated in the preparation of two patents since the responsible of the research team left the company as I incorporated therein, being obliged to direct the work.

Therefore, I must insist that my labour tasks exceeded greatly from the object and aim of our trainee contract, and that my personal contribution to the subject inventions was irreplaceable, or at least essential.

That FICOSA has effectively request me to review certain legal documentation relating to the US law, and that additionally, FICOSA has requested me that once analysed such documentation I shall sign and assign certain rights to the company for the amount of one american dolar.

I do not need to remind you that my technical background as an engineer impides me to go into the legal specialities particularly if those are referred to US law, therefore I was obliged to seek a lawyer specialised in these matters.

The most curious thing in this situation is that FICOSA has not even answered or attended my lawyer's requests to initiate a conversation/negotiation with the company which permits, at least, to reach an economic agreement in compensation of the costs for the legal assessment in Spain and USA as well as for the requested assignment of rights.

Despite all the above exposed, my intention is to reach an agreement which permits me to accede to your petition.

I look forward to hearing from you.

Best regards,

SERGIO NIETO

CORREOS

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Doña ROSA XAVIER BAILO, Directora de la Oficina de Correos de la Suc-1 de Barcelona, a petición de:

Sol Muntañola & Asoc. S.L

CERTIFICA:

Que el documento adjunto, fax número 1886 impuesto en esta Oficina el día 24 DIC. 2004 de 2004, de 16 página/s, numeradas de la 1 a la 16 y dirigido a:

SERGIO NIETO GIL

fue transmitido por el servicio de Burofax con fecha 24 DIC. 2004

Y para que conste a los efectos oportunos, se expide la presente en Barcelona a 24 DIC. 2004 de dos mil cuatro.

SOL MUNTAÑOLA & ASOCIADOS
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SERGIO NIETO GIL
C/ Duquesa Villahermosa 139, 11° B
50009 ZARAGOZA

CONDUCTO: Burofax

DATE: December 24, 2004

RE: PCT/EP02/00596 "Mecchanism with load sensor for operating a brake" and PCT/EP01/07341 "Electrically powered parking brake" in the name of FICO CABLES, S.A.

Dear Mr. Nieto,

We write to you on behalf of Fico Cables, S.A. who appointed our lawfirm as their legal representatives for Intellectual Property matters worldwide.

As you are aware from the correspondences exchanged to date with Fico Cables and their German Patent attorneys –Bardehle, Pagenberg- and their American lawyers – Renner Otto and Cooley Goodward LLP, which you acknowledged safe receipt of, the PCT/EP02/00596 entered into the national phase in the US on July 11, 2003 as US Serial Nº 10/617,538 and the PCT/EP01/07341 on March 2003 as US Serial Nº 10,363,613.

For that reason, in the past two years you have received several times and acknowledged receipt of the shipment of some documents concerning each PCT application, which need to be filed, duly signed by you as an inventor of the patents, along with the patent applications at the United States Patent and Trademark Office (USPTO) in order to complete the filings.

Said documents are an Inventor Declaration and an Assignment of Rights, which require the signature of each co-inventor of the subject patents.

Please note that these documents are a formal requeriment of the US Patent Law and need to be filed **as soon as possible** in order to permit the normal follow-up of the patent applications.

The assignment of rights document is just a declarative step since **the patent rights are exclusively owned by Fico Cables, S.A.** which was the company that employed you at the time the inventions were developped, as further explained below.

SOL MUNTAÑOLA & ASOCIADOS
A B O G A D O S

According to the Spanish Patent Act –Art.15.1-, which is the applicable law to the case at hand since you are a Spanish citizen domiciled in Spain, the employer company, Fico Cables, S.A. is also a Spanish company based in Spain and the invention was created within the Spanish territory; the inventions developped by an employee during his labour contract which are explicit or implictly related to the research content of his contract, pertain to the employer.

Furthermore, the Spanish Law establishes in its Art. 14 that the inventor has the right to be mentioned as such in the patent. A PCT patent application which designates Spain has the same legal effects and is governed by the Law of Spain, according to the Real Decree 1123/1995, as if it were a Spanish patent application.

According to these legal principles, since you were contracted by Fico Cables, S.A. as an engineer to undertake specific research and development of spare parts for the automobile industry, in particular brakes and cables which is the main business activity of Fico Cables and the subject inventions refer to car brakes, **the rights to the inventions developped by you along with the other co-inventor, Mr. Jaume Prat, belong to the employer Fico Cables, S.A.**

Furthermore please recall that at the time of filing of the priority German applications and the subsequent PCT applications no assignment of rights was due since for the above exposed legal reasoning these rights had always belong to the titleholder of the applications, Fico Cables, S.A.

Moreover, we would like to point out that the Spanish Estatute of the Employees (Estatuto de los Trabajadores) which is the general rule applying to all labour relationships establishes as a basic duty of employees the need to comply with the precise obligations of their labour post according to the **principles of good faith and due diligence.**

In addition, the Spanish Patent Act states in its Art. 18.2 that both the employer and the employee shall collaborate in as much as necessary for the effectiveness of the rights contained in the Patent Act, **refraining from any actuation which may jeopardize said rights.**

In view of the foregoing, we kindly request you to reconsider your non-cooperative attitude, by signing the enclosed documents and returning them to our office **not later than December 30, 2004** in order to avoid any further detrimentals to our client's patent rights which have been in the limbo for the past two years due to the lack of filing of the mentioned declarations of inventorship and assignments of rights.

In absence of receiving within the due date the Declarations of Inventor and Assignments of rights concerning both patent applications as above-referenced, we will understand that you refuse to sign them and we will be forced to strongly recommend our client to initiate any legal actions available to recover the damages and costs caused to date due to your absence of collaboration.

SOL MUNTAÑOLA & ASOCIADOS
A B O G A D O S

In any event, Fico Cables, S.A. reserves their rights to initiate any legal actions available.

Yours sincerely,

Lara Grant Segovia

C/C. BUFETE MORENO-TORRES
A/A Mr. Manuel Moreno Torres
Paseo de Pamplona, Nº 1, 7º A
50004 Zaragoza

FAX-2 ET

Nº FAX DE DESTINO: 93-415-65-73

CORREOS

1. Oficina de origen: ZARAGOZA OP

5000010-2004-12NB-946

NB5000010120400946

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2. Oficina transmisora	3. Serial transmisión	Nº de origen
5000010		946

4. Páginas	5. FECHA Y HORA DE		
	Depósito	Transmisión	Recepción
1	30/12/2004 14:01		

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7. Modo de entrega y menciones de servicio

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(nº Cert.: 5000010-2004-010373)

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9. Expedidor, dirección y teléfono

BUFETE MORENO-TORRES, MANUEL MORENO-TORRES
Pº PAMPLONA, 1, 7ºA
50.004 ZARAGOZA 976 362 175

* RE: Riesgo expedidor: original deficiente

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SOL MUNTAÑOLA & ASOCIADOS
Atn: Lara Grant Segovia
Avenida Diagonal, número 510, 3°
08006 Barcelona (Barcelona-ESPAÑA)

Zaragoza, 30 de diciembre de 2004

Estimada Señora Grant,

Me refiero a su carta fax en relación al señor Nieto y los **PCT / EPO2 / 00596** y **PCT / EPO1 / 07341**

De nuevo les tengo que recordar que ustedes han ofrecido a mi cliente, señor Nieto, compensación económica por la firma de los documentos enviados pero que no ha existido acuerdo en su cuantificación.

Asimismo, les recuerdo que siendo ciertos sus correctos comentarios sobre la Ley española aún lo son mas aquellos que imponen a su empresa la diligencia debida en la protección de su invención. Consecuentemente, firmado el documento de finalización del contrato, el señor Nieto se liberaba de todo tipo de obligaciones con su representado.

Por lo demás, resulta sorprendente que por una parte ofrezcan compensación económica al señor Nieto y por otra se dediquen a amenazarle con la presentación de demandas en los Tribunales, máxime cuando conforme a la Ley norteamericana la intervención del señor Nieto no es ni imprescindible ni necesaria ¿qué daño puede hacer el señor Nieto a su cliente cuando sería él el único perjudicado al no aparecer como inventor?

Finalmente, reiterarles nuestra voluntad de solucionar el presente incidente incluso con el inicio de un procedimiento de mediación a través del Centro de Mediación y Arbitraje de la OMPI.

A la espera de noticias suyas, reciban un cordial saludo,

12.12

Manuel Moreno-Torres

P° Pamplona n° 1, 7° A 50.004 Zaragoza Tlf: 902.362.175 Fax: 902.364.593

SOL MUNTAÑOLA & ASOCIADOS
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BUFETE MORENO-TORRES
A/A Mr. Manuel Moreno Torres
Paseo de Pamplona, Nº 1, 7º A
50004 Zaragoza
España

CONDUCTO: Burofax

DATE: January 4, 2004

RE: PCT/EP02/00596 "Mecchanism with load sensor for operating a brake" and PCT/EP01/07341 "Electrically powered parking brake" in the name of FICO CABLES, S.A.

Dear Mr. Moreno,

We acknowledge receipt of your letter sent on December 30, which was received in our offices on December 31, 2004.

We regret to hear that your client is maintaining his non-cooperative and groundless position, whose reasons we ignore.

It is untrue that neither Fico Cables, S.A. nor ourselves, as their legal representatives, had offered your client an economic compensation for the signature of the documents required to be filed at the USPTO, and will ever offer such compensation, since as it was already and fully explained in our letter of December 24 there is no legal basis at all for such compensation.

Furthermore, you seem to ignore the legal principles stated in our mentioned previous letter which are applicable in the present case in order to request your client the signature of the subject documents even if his labour relationship terminated, by his express will, some time ago.

On the contrary, Mr. Nieto's hindering attitude which is impeding our client, Fico Cables, S.A. the obtainance meanwhile of the grant of their patent rights, the impossibility to Fico Cables of enforcing said rights against unlawful competitors, along with the time and costs incurred by our client in the past two years in trying unsucessfully to obtain the mentioned documents signed by Mr. Nieto, represent perfect assessable damages.

Taking into account the foregoing, we appeal to Mr. Nieto's common sense and request him kindly to send us **by January 7, 2004** the subject documents duly signed and dated.

In absence of receiving the referred documents duly signed by the due date, we reserve our rights to immediately initiate any legal actions available in order to recover the damages caused so far by Mr. Nieto as highlighted above as well as any subsequent damages that may be caused due to the maintainance of Mr. Nieto's hindering attitude.

We look forward to hearing from you. Best regards,

Lara Grant Segovia

FAX-2 ET

Nº FAX DE DESTINO: 93-415-65-73

CORREOS

ZARAGOZA OP

1. Oficina de origen 5000010-2005-01NB-109

NB5000010010500109

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2. Oficina transmisora	3. Serial transmisión	Nº de origen
5000010		109

4. Páginas	5. FECHA Y HORA DE		
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1	07/01/2005 12:52		

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* RE: Riesgo expedidor; original deficiente

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SOL MUNTAÑOLA & ASOCIADOS
Atn: Lara Grant Segovia
Avenida Diagonal, número 510, 3°
08006 Barcelona (Barcelona-ESPAÑA)

january the 7th 2005

Ref: PCT / EPO2 / 00596 y PCT / EPO1 / 07341

Dear Ms Grant,

Please bear in mind that Mr. Nieto is willing to execute the inventor's declaration for both patents applications.

Once finished his labor relationship (and signed the settlement) on March 2.001, 31th no longer obligations were established between the parties.

My client developed his work at Ficocables S.A. eficiently with "Training Contract" and no special requirements were included accordingly the standard format stablished by Spanish Law.

Since the Ficocables S.A has refused to offer reasonable compensation (at the assignment contract is offered one dollar which is simply ridicule) to the inventor for his time in reviewing the application, we are willing to mediate with your client in order to achieve an alternative resolution.

Our score is to obtain reasonble compensation for the following:

1.1. Legal costs: specialists in spanish and american patent law;

1.2. Mr. Nieto's dedication to read and to analyse the sucessives comunications from Ficocables S.A. and its representatives, which have been taking place until now;

1.3. the obligations and duties which Mr. Nieto assumes in the assignment of applications for USA patents.

1.4. the value of the service and the grant of his signature.

Kind regards,

12,12

Manuel Moreno-Torres